THE LANCET

A Journal of British and Foreign Medicine, Surgery, Obstetrics, Physiology, Chemistry, Pharmacology, Public Health, and News.

TELEGRAPHIC ADDRESS—LANCET, WESTRAND LONDON TELEPHONE NUMBER—GERRARD 5356

No. XIX. OF VOL. I., 1919.
No. 4993. Vol. CXCVI. LONDON, SATURDAY, MAY 10, 1919. Pp. 112—Price 10d.

IN THE STUDENTS' AIDS SERIES.

AIDS TO MEDICAL DIAGNOSIS. By A. J. WHITING, M.D., C.M.Edin., M.R.C.P.Lond. Second Edition. Price 3s. net.
AIDS TO GYNÆCOLOGY. Fifth Edition. By S. JERVOIS AARONS, M.D.Edin., M.R.C.P.Lond. Price 3s. net.
AIDS TO HISTOLOGY. By A. GOODALL, M.D., F.R.C.P. Edin. Second Edition. With 20 Illustrations. Price 3s. net.
AIDS TO RATIONAL THERAPEUTICS. By R. W. LEFTWICH, M.D., C.M., M.R.C.S. Price 3s. 6d. net.
AIDS TO BACTERIOLOGY. By C. G. MOOR, M.A., F.I.C., and W. PARTRIDGE, F.I.C. Third Edition. Price 4s. net.
AIDS TO THE ANALYSIS OF FOOD AND DRUGS. By C. G. MOOR, M.A., F.I.C., and W. PARTRIDGE, F.I.C. Fourth Edition. Price 4s. 6d. net.
Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, London, W.C. 2.

BY W. SOLTAU FENWICK, M.D.

DYSPEPSIA: Its Varieties and Treatment.
Octavo, 455 pages. 13s. net.
W. B. Saunders Co., 9, Henrietta-street, W.C.2.

CANCER OF THE STOMACH.
362 pages. 10s. 6d.
ULCER OF THE STOMACH AND DUODENUM.
392 pages. 10s. 6d.
J. & A. Churchill, 7, Great Marlborough-street, W.1.

Demy 8vo. 412 pages, 12 Plates, and 122 Illus. Cloth. Price 10s. 6d. net.
EYE, NOSE, THROAT, AND EAR.
A Manual for Students and Practitioners.
By JAMES FORREST, M.B., Ch.B.Edin.
Henry Kimpton, Medical Publisher, 263, High Holborn, London, W.C.

By FREDERICK W. PRICE, M.D., F.R.S. Edin., Physician to the Great Northern Central Hospital; Assistant Physician to the National Hospital for Diseases of the Heart, London.

DISEASES OF THE HEART.
THEIR DIAGNOSIS, PROGNOSIS, AND TREATMENT BY MODERN METHODS.
WITH A CHAPTER ON THE ELECTRO-CARDIOGRAPH.
Demy 8vo. 484 pp. With 245 Text-figures. 21s. net.

LANCET.—"By great care and by the use of an amazing amount of material, he has accomplished what many readers have been waiting for, giving us a complete account of the diagnosis, prognosis, and treatment of heart diseases by modern methods in association with all the invaluable teaching bequeathed to us by the older masters of clinical observation."
BRITISH MEDICAL JOURNAL.—"The book presents a comprehensive account of modern knowledge of cardiology."
EDINBURGH MEDICAL JOURNAL.—"Taken as a whole this book is, from the practitioner's point of view, one of the best of the many monographs on the heart that have appeared of recent years."
DUBLIN MEDICAL JOURNAL.—"It is probably destined to take the place in the library of the present day physician that was occupied some twenty or more years ago by Sir William Broadbent's well-known work."
PRACTITIONER.—"In his evident desire to place before his readers a succinct, and, at the same time, a comprehensive account of cardiac disease in the light of modern knowledge, Dr. Price has certainly succeeded."
MIDLAND MEDICAL REVIEW.—"It is impossible to enumerate the many excellencies of this book."
Henry Frowde and Hodder & Stoughton, Oxford Press Warehouse, 17, Warwick-square, Newgate-street, London, E.C. 4.

DISEASES OF WOMEN.
By THOMAS GEORGE STEVENS, M.D., F.R.C.S., M.R.C.P.

THE BRITISH MEDICAL JOURNAL says: "It may certainly claim to be regarded as a good text-book."
While THE LANCET recommends "The whole book as a refreshingly good one, and is particularly strong in its pathology."
With 202 Illustrations. Bound in Cloth. 15s. net.
University of London Press, 18, Warwick-square.

SECOND (REVISED) EDITION
KERLEY'S
PRACTICE OF PEDIATRICS.
See Saunders' Advertisement on Page 5.

Royal 8vo. Pp. xvi. + 623. With 373 Original Illustrations and 8 Coloured Plates. Price 30s. net.
WAR SURGERY. From Firing-line to Base.
By Major BASIL HUGHES, R.A.M.C., D.S.O., F.R.C.S., and Capt. H. STANLEY BANKS, R.A.M.C., M.A., M.B., Ch.B. With Introduction by Colonel Sir T. CRISP ENGLISH, K.C.M.G., F.R.C.S.
"..... the only volume of its size dealing with surgery such as we know it in this war."—LANCET.
London: Baillière, Tindall & Cox, 8, Henrietta-st., Covent Garden, W.C.2.

Now Ready. Pp. xi.+269. With 3 Charts. 5s. net.
ON ALCOHOLISM: Its Clinical Aspects and Treatment.
By FRANCIS HARE, M.D., Medical Superintendent of the NORWOOD SANATORIUM, Beckenham.
"Marked by candour, common sense, and moderation ..... likely to become the standard text-book."—BRITISH MEDICAL JOURNAL.
London: J. & A. Churchill, 7, Great Marlborough-street.

OXFORD MEDICAL PUBLICATIONS.

IN THE PRESS.
STERILITY IN WOMEN.
By ARTHUR E. GILES, M.D., M.B., Ch.B., F.R.C.S., M.R.C.P., Captain, R.A.M.C. (Temp.); Senior Surgeon to the Chelsea Hospital for Women; Gynæcologist to the Prince of Wales's General Hospital, Tottenham.
Demy 8vo. Cloth. 243 pp. Illustrated.

PSYCHO-ANALYSIS
AND ITS PLACE IN LIFE.
By M. K. BRADBY.
Demy 8vo. Cloth 278 pp. With Frontispiece.

Henry Frowde and Hodder & Stoughton, 17, Warwick-square, Newgate-street, London, E.C. 4.

H. K. LEWIS & CO. LTD., MEDICAL PUBLISHERS AND BOOKSELLERS.
Close to Euston Square Station (Metropolitan Railway), Warren Street Station for All Tube Railways.

. . . *Orders by Post or Telephone promptly attended to.* . . .
Special attention to packing and forwarding of Books to All Parts of the World.

MEDICAL AND SCIENTIFIC CIRCULATING LIBRARY.
Annual Subscription, Town or Country, from One Guinea.

COMPLETE CATALOGUE, revised to December, 1917, with Classified Index of Authors and Subjects. 500 pp. Demy 8vo. 12/6 net; to Subscribers 6/- net. JUST PUBLISHED.

136 GOWER STREET and 24 GOWER PLACE, LONDON, W.C. 1.
Telegrams: "PUBLICAVIT, EUSROAD, LONDON." Telephone: MUSEUM 1072.

"COFECTANT" LOZENGES

These Lozenges are safe for all persons, including young Children, and they should be taken whenever there is a soreness or hoarseness in the throat.

The surfaces and membranes of the mouth and throat, moistened by saliva charged with "COFECTANT" will be sterilized and the air on its way to the lungs will be rendered aseptic.

1/3 per Box from all High-class Chemists.

EDWARD COOK & CO., Ltd., Bow, LONDON, E. 3.

LESLIES' ZŌPLA

(ZINC OXIDE PLASTER) Formerly Zincoplast.

THE PERFECTED SURGICAL PLASTER.

Instantly Self-adhesive. Will not slip wherever put. **THE ONE REAL NON-IRRITATING PLASTER.** Will keep without drying up.

Supplied on White and Flesh-colour Cloths, also on Holland on Spools ½" to 4" wide in 5 or 10 yard lengths in rolls 7" and 12" wide. Also on moleskin, chamois leather, felt, and waterproof cloth. **SAMPLES ON REQUEST.**

ZŌPLA is made by the firm with the reputation for BROWN HOLLAND STRAPPING (Original make).

LESLIES, Ltd. (British firm throughout), **62, London Wall. E.C. 2.**

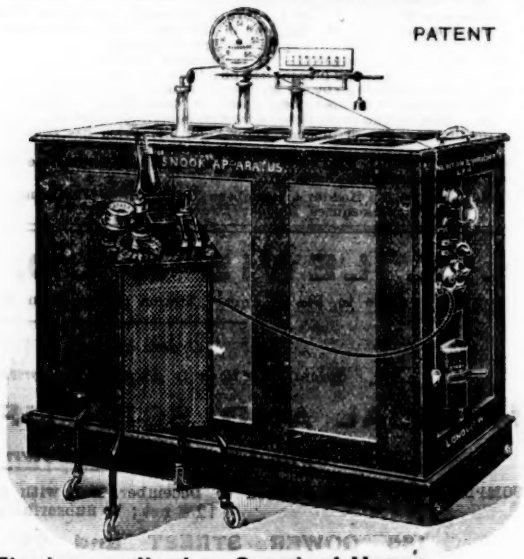
THE "SNOOK" TRANSFORMER

is generally recognised as the

Premier

X-Ray Apparatus

PATENT



WRITE FOR ILLUSTRATED PAMPHLET (NEW EDITION, JUST PUBLISHED) TO THE

Sole Makers in the United Kingdom:

NEWTON & WRIGHT, Ltd.,

Manufacturers of all types of X-ray and Electro-medical Apparatus,

72, WIGMORE STREET, LONDON, W. 1.

WHOLESALE & EXPORT ONLY. Established over 200 Years.

Obtainable from any Electrical, Electro-medical or Surgical House.

THE LANCET.

No. 4993. LONDON, SATURDAY, MAY 10, 1919. Vol. CXCVI.

CONTENTS.

The whole of the literary matter in THE LANCET is copyright.

A LECTURE on Missiles as Emboli. Delivered in the Surgical Section of the Royal Society of Medicine. By Sir JOHN BLAND SUTTON, F.R.C.S Eng., President of the Section.—*(Illustrated)*.... 773

AN ADDRESS (in Abridged Form) on the Continued High Maternal Mortality of Childbearing. The Reason and the Remedy. Delivered before the Obstetric Section of the Royal Society of Medicine, May 1st, 1919. By VICTOR BONNEY, M.S., M.D., B.Sc. Lond., F.R.C.S. Eng., M.R.C.P. Lond., Assistant Obstetric and Gynæcological Surgeon to the Middlesex Hospital; Surgeon to Chelsea Hospital for Women, &c..... 775

ORIGINAL ARTICLES.

The Care and Treatment of Cases of Malaria. By Colonel Sir RONALD ROSS, K.C.B., K.C.M.G., F.R.S., Consultant in Malaria, War Office and Ministry of Pensions..... 780

An Investigation upon the Influence of Malaria on the Wassermann Reaction. By J. GORDON THOMSON, M.B., Ch.B. Edin., Captain, R.A.M.C.(T.C.); Protozoologist, London School of Tropical Medicine; and CLAUDE H. MILLS, M.R.C.S., L.R.C.P., Honorary Surgeon to St. Paul's Hospital for Skin and Genito-Urinary Diseases; Specialist attached to Rochester Row Military Hospital..... 782

Wassermann Tests: The Occurrence of Variations in the Results of Successive Tests; the Clinical Application of the Data. By C. H. BROWNING, M.D. Glasg., D.P.H. Oxon; and B. L. KENNAWAY, D.Sc. Lond., M.D. Oxon. (From the Bland-Sutton Institute of Pathology, Middlesex Hospital.)—*(Illustrated)*..... 785

The Complement-Fixation Test in Gonococcal Infections, and the Preparation of a Gonococcus Antigen. By ARTHUR H. PRIESTLEY, M.B., Ch.B Vict., late Captain, R.A.M.C.(T.C.) 787

Some Forms of Irritable Heart. By I. Harris, M.D. (From the Cardio-Therapeutic Department, David Lewis Northern Hospital, Liverpool.)..... 787

The Persistence of Cerebro-Spinal Fever Cases as Carriers of the Meningococcus during Convalescence. By DENNIS EMBLETON, M.A., M.B. Cantab., Major, R.A.M.C.; Cerebro-spinal Fever Officer, Netley, Southampton, New Forest, and Winchester Area; Bacteriologist, Royal Victoria Hospital, Netley; and GEORGE H. STEVEN, M.B., Ch.B. Edin., Bacteriologist, Royal Victoria Hospital, Netley. (Report to Medical Research Committee)..... 788

Subacute Trench Fever. By J. H. LLOYD, M.D Lond., Major, R.A.M.C. (T.F.).—*(Illustrated)*..... 791

The Lacrymal Gland in Surgical Anæsthesia. By the late L. T. RUTHERFORD, M.B., B.C. Cantab. 792

Rectal Ether Anæsthesia. Observations from 100 Cases. By J. C. CLAYTON, M.R.C.S., L.R.C.P. Lond., Captain, R.A.M.C (T.C); Anæsthetist, Queen's Hospital, Sidcup, &c. 793

MEDICAL SOCIETIES.

ROYAL SOCIETY OF MEDICINE: SECTION OF MEDICINE..... 794
SECTION OF OBSTETRICS AND GYNÆCOLOGY..... 798
MEDICO LEGAL SOCIETY..... 797
SOCIÉTÉ DE BIOLOGIE, PARIS..... 798

REVIEWS AND NOTICES OF BOOKS.

Diseases of the Skin. By James H. Sequeira, M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng. Third edition 798

Pensions and the Principles of Their Evaluation. By Llewelyn J. Llewellyn; and A. Bassett Jones..... 799

War Pensions: Past and Present. By Judge Parry and Lt.-Gen. Sir Alfred Edward Codrington 799

Disabilities of the Locomotor Apparatus the Result of War Wounds. By Aug. Broca..... 799

Bodily Deformities. By the late E. J. Chance, F.R.C.S. Vol. II. 800

Bedside and Wheel-Chair Occupations. By Herbert J. Hall, M.D. No. 5. Series II..... 800

Spirochétose Ictérohémorragique. Par Louis Martin et Auguste Pettit..... 800

LEADING ARTICLES.

THE PROGRESS OF THE MEDICAL PARLIAMENTARY COMMITTEE 801
THE MATERNAL MORTALITY OF CHILDBIRTH AND THE TEACHING OF MIDWIFERY..... 802
EUTHANASIA..... 803

ANNOTATIONS.

Hygiene for School Teachers.... 804
Traumatic Toxæmia..... 805
The Poona Seva Sadan..... 806
The Retained Placenta..... 806
Rabies..... 806
The Significance of the Wassermann Reaction 807
Journal of General Physiology 807
A Conference of Medical Bodies 808

SPECIAL ARTICLES.

The Medical Parliamentary Committee: an Important Conference 808
Maternity and Child Welfare... 811
Ireland..... 812
Scotland..... 812
Notes from India..... 813
New York..... 813
The Services..... 822

URBAN VITAL STATISTICS 823

PARLIAMENTARY INTELLIGENCE.

Notes on Current Topics..... 818
House of Lords..... 818
House of Commons..... 820

CORRESPONDENCE.

Portrait of Sir Clifford Allbutt (Dr. J. A. Macdonald and others) 814
Immuno-Transfusion (Dr. Thomas Lumsden)..... 814
Hilus Tuberculosis in Children and Adults (Dr. Theo. Fisher) 814
The Lower Uterine Segment and Uterine Tendons (Dr. R. H. Paramore) 815
Lung-Puncture in the Treatment of Influenzal Pneumonia (Dr. Clive Riviere)..... 816
The Literature of Hæmatology (Dr. Gordon Ward)..... 817
Laboratory Methods and the Diagnosis of Venereal Diseases (Mr. Hugh Wansey Bayly)... 817
The Medical Parliamentary Committee (Dr. Arthur Latham and Dr. Chas. Buttar) 817
Saccharose Injections in Pulmonary Phthisis (Dott. Eschilo Della Seta)..... 828

THE WAR AND AFTER.

The Casualty List..... 817
Casualties among the Sons of Medical Men 817

MEDICAL NEWS.

Presentations to Medical Men.. 781
Literary Intelligence 823
The late Mr. Edward Treves..... 823
South London Hospital for Women..... 823
The late Dr John MacCombie.. 823
Hunterian Society..... 823
The late Dr. W. Gemmell..... 823

NOTES, SHORT COMMENTS, &c.

Colonial Health Reports..... 825
Spirit Duty (Voluntary Hospitals) Grant..... 823
A Tensor.—*(Illustrated)*..... 826
Public House Reform..... 826
The Care of Books in Large Libraries 826

Medical Diary 824
Appointments.—Vacancies 824
Births, Marriages, and Deaths 825
Books, &c., received..... 825
Acknowledgments of Communications received..... 823

Any Reader of The Lancet

in the United Kingdom who is paying 10*d.* a week for his copy can obtain it at a little over 8¼*d.*, and have it delivered by post to his address, by entering a subscription with his local bookseller or newsagent, or direct with The Lancet Office. Subscriptions may commence at any time, and copies will be despatched promptly each week at the following rates:—

3 months, 9*s.*; 6 months, 18*s*; 12 months, 36*s.*

Cheques and P.O.'s should be made payable to Mr. Charles Good, Manager, The Lancet Office, 423, Strand, London, W.C. 2.

MALARIA AND ITS TREATMENT: In the Line and at the Base.

By Captain A. CECIL ALPORT, R.A.M.C. Demy 8vo. 300 pp. 27 Plates (8 Coloured). Cloth. Price **21s.** net, postage 6d.

"This book should certainly be read by all interested in the treatment of malaria. It is essentially practical, and sets out in detail the methods adopted by the writer with so much success. ..... The illustrations are good. ..... The author has certainly succeeded in making a notable contribution to the subject with which his book deals."—WEST LONDON MEDICAL JOURNAL.

MANUAL OF EMERGENCIES, Medical, Surgical, and Obstetric: Their Pathology, Diagnosis and Treatment.

By J. SNOWMAN, M.D., M.R.C.P. Demy 8vo. Cloth. **15s.** net, postage 6d.

"..... The book is eminently practical, and, what is more, the practice advocated is based upon sound principles. ..... The book is adapted to the needs of the general practitioner, and it would be difficult to find one of greater use to the man who has recently qualified or who is holding a resident appointment. It is written in an easy and pleasant manner, and what especially commends itself to us is the absence of vagueness in the sections concerned with treatment. The author is not likely to fall one at the critical moment. ..... An excellent chapter deals with the practical side of serum sickness and the prevention of anaphylactic phenomena. The book is printed in good type, and there is a full index."—THE LANCET.

JOHN BALE, SONS & DANIELSSON, Ltd., 83-91, Great Titchfield Street, Oxford Street, London, W. 1.

MACMILLAN'S NEW & RECENT BOOKS.

Fibroids and Allied Tumours (Myoma and Adenomyoma):

Their Pathology, Clinical Features, and Surgical Treatment. By **CUTHBERT LOCKYER**, M.D., B.S., F.R.C.P., F.R.C.S., Joint Editor of "The New System of Gynæcology." With an Introductory Notice by ALBAN DORAN, F.R.C.S., Consulting Surgeon to the Samaritan Free Hospital for Women. With 316 Illustrations, including 37 Coloured Plates. Super royal 8vo. 63s. net.

THE LANCET:—"Indispensable to anyone engaged in the teaching of gynæcology; it will increase the author's already high reputation as a clinical pathologist, and it is a production on which we can most heartily congratulate him. The publishers are also to be congratulated for their part, as are the artists, for the beautiful illustrations which have been well reproduced."

The New System of Gynæcology.

Edited by **THOMAS WATTS EDEN**, M.D., F.R.C.S.E., F.R.C.P.; and **CUTHBERT LOCKYER**, M.D., B.S., F.R.C.S., F.R.C.P. In Three Volumes. With numerous Illustrations in Colour and Black-and-White. Crown 4to. £6 6s. net.

THE LANCET.—"We have no hesitation in saying that this 'System' does the greatest credit to all concerned in its production, and it is the best and most complete work on gynæcology which has appeared so far in the English language."

A Practical Handbook of the Diseases of the Ear.

For Senior Students and Practitioners.

By **Sir WILLIAM MILLIGAN**, M.D., Aurist and Laryngologist to the Royal Infirmary, Manchester; and **WYATT WINGRAVE**, M.D., Pathologist (lately Physician) to the Central Throat and Ear Hospital, London. With 293 Illustrations and 6 Coloured Plates. 8vo. 18s. net.

THE PRACTITIONER.—"A work which will maintain its position as a standard book both for reference and study, and which is designed to pass through many editions."

THE LANCET.—"The most comprehensive work on diseases of the ear which has been published in the British Isles, and it is one which, although professedly for senior students and practitioners, will doubtless be found equally welcome by those who deal more especially with aural surgery."

Botany of the Living Plant.

By **F. O. BOWER**, Sc.D., F.R.S., Regius Professor of Botany in the University of Glasgow. With 447 Figures. 8vo. 25s. net.

THE ATHENÆUM.—"This is a comprehensive text-book of botany, worthy in every sense of the best English tradition of lucid scientific writing. ..... Professor Bower deserves our congratulations and our thanks."

Text-book of Embryology.

VOL. II. VERTEBRATA WITH THE EXCEPTION OF MAMMALIA. By **J. GRAHAM KERR**, Regius Professor of Zoology in the University of Glasgow. Illustrated. Med. 8vo. 31s. 6d. net.—Previously Published: VOL. I. INVERTEBRATA. By Prof. E. W. MACBRIDE, D.Sc., F.R.S. 31s. 6d. net.

Dr. John Fothergill & His Friends: Chapters in Eighteenth Century Life.

By **R. HINGSTON FOX**, M.D. With Portraits and other Illustrations. 8vo. 21s. net.

The Mastery of Nervousness.

Based upon Self Re-Education.

By **ROBERT S. CARROLL**, M.D. Crown 8vo. 10s. 6d. net.

MACMILLAN & CO., Ltd., London, W.C. 2.

WORKS BY H. J. WARING,

M.S., M.B., B.Sc. Lond., F.R.C.S.

Surgeon to, and Joint Lecturer in Surgery at, St. Bartholomew's Hospital; Consulting Surgeon to the Metropolitan Hospital; Member of Court of Examiners, Royal College of Surgeons; late Examiner in Surgery, University of London.

NEW EDITION SHORTLY.

8vo, extra cloth. Pp. xvi.-385, with 58 Engravings. Price 12/6 net.

SURGICAL DISEASES OF THE GALL-BLADDER, BILE DUCTS, AND LIVER.

THEIR PATHOLOGY, DIAGNOSIS, & TREATMENT.

(Including Jacksonian Prize Essay.)

MANUAL OF OPERATIVE SURGERY.

FOURTH EDITION.

Crown 8vo, cloth. With 521 Illustrations, 30 of which are in colours. Price 14/- net.

HENRY FROWDE & HODDER & STOUGHTON,

Oxford Press Warehouse, 17, Warwick-sq., Newgate-st., London, E.C. 4

Price 1s. With Illustrations.

APPLICATION OF TRUSSES

to **HERNIÆ**. Clinical Lecture delivered at King's College Hospital. By the late JOHN WOOD, F.R.S., Senior Surgeon to King's College Hospital. Reprinted from "Medical Examiner."

London: Matthews Brothers, 10, New Oxford-street, W.C.

STAMMERING, LISPING, & CLEFT-PALATE SPEECH

By Mrs. BEHNKE.

Price 1s. 6d. net (postage 2d.), of Miss Behnke, 18, Earl's Court-square S.W. 5, who receives Stammerers for Treatment, and Singers and Speakers for Voice Training. REFERENCES to Medical Practitioners.

"The method is scientifically correct and perfectly effective."
—GUY'S HOSPITAL GAZETTE.

"Pre-eminent success in the education and treatment of stammering and other speech defects."—THE TIMES.

STAMMERING

W. J. KETLEY, "Tarrangower," Brondesbury, N.W.

(30 years colleague of late B. BEASLEY, Brampton Park, Huntingdon.)

Those interested in the subject should write for his book, which will be sent post free.

STAMMERING

MOST SUCCESSFULLY TREATED.

RESIDENT AND DAILY PUPILS.

PROSPECTUS AND MEDICAL OPINIONS POST FREE FROM

Mr. A. C. SCHNELLE,

Estd. 1905.] 119, Bedford Court Mansions, London, W.C.

A Lecture
ON
MISSILES AS EMBOLI.

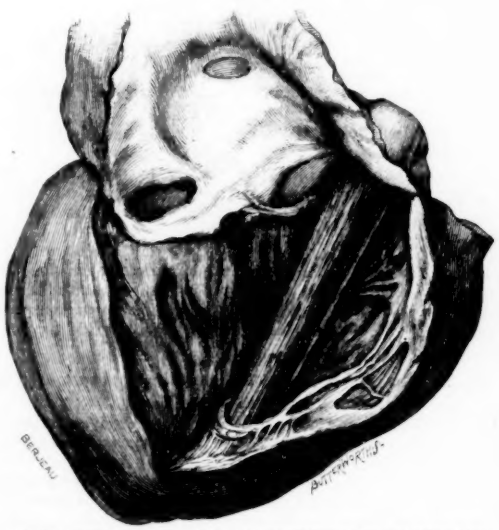
Delivered in the Surgical Section of the Royal Society of Medicine

BY SIR JOHN BLAND-SUTTON, F.R.C.S. ENG.,
PRESIDENT OF THE SECTION.

Missiles often attain more curious places by accident than they could obtain by design.

A BOY, aged 10, made a gun of a telescopic toasting-fork. To form the breech of the gun he drove a plug of wood 3 in. into the hollow handle of the fork and made a touch-hole. When the gunpowder exploded the stick was forced into his chest between the third and fourth costal cartilages, to the right of the sternum. Immediately after the accident the boy walked a distance of 40 yards to his home. He survived the accident 37 days. After death a piece of wood, 3 in. long and as thick as a cedar pencil, was found in the right ventricle of the heart encrusted in clot. (Fig. 1.) Thomas Davis reported these facts in 1834; he found no wound in the pericardium or the heart, and expressed the opinion that the stick, after wounding the lung, passed into the vena cava and was carried by the blood stream into the right auricle and then into the right ventricle, where it was found. On reading this report for the first time I was sceptical in regard to the embolic theory that Davis advanced to explain the presence of the stick in the ventricle, for at the date of the accident surgeons knew nothing of the transport of blood-clot either to or from the heart. It was at least a quarter of a century later that the word embolus was coined by Virchow, and the dangers underlying the movement of clot began to be understood.

FIG. 1.



Right ventricle of a boy's heart containing a piece of stick 3 in. long that was carried into it by the blood stream (T. Davis, 1834).

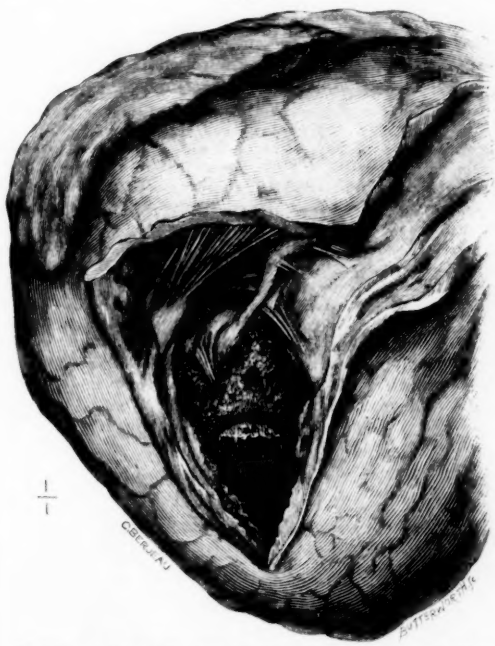
At the storming of the Great Pagoda, Rangoon, 1852, a round leaden bullet entered the chest of a soldier between the third and fourth ribs near the anterior fold of the left axilla. Blood and air issued from the wound for several days, and the surrounding tissues became emphysematous. The man was attended in the field hospital by Dr. J. Fayrer (the late Sir Joseph Fayrer), the symptoms abated, and the patient came under the care of Dr. W. White. The soldier died 72 days after being wounded. An examination of the body revealed a pint of pus in the left pleural cavity, and a piece of cloth from his jacket. The lung was solid. The track of the missile ran through the chest to the left pulmonary veins. The rifle ball lay in the left ventricle of the heart near its apex. There was no wound of the heart. It appeared from these facts that the ball perforated one of the left pulmonary veins, entered the left auricle, and finally passed into, and settled in, the left ventricle. The heart is preserved in the Museum of the Medical College, Calcutta.

These are the two earliest records I can find of missiles entering the cavities of the heart as emboli.

Wounds of the heart received little attention from surgeons until Farina, of Rome, quickened interest in the matter by stitching a stab-wound of the heart at the Spedale della Consolazione in 1896.

Gunshot as well as incised wounds of the heart soon attracted the attention and enterprise of surgeons. The Great War has furnished many remarkable examples of the manner in which missiles enter and leave the heart, and some instructive preparations illustrating such accidents are comprised in the War Office Collection of pathological specimens. A study of these preparations proves conclusively that missiles occasionally become dangerous emboli.

FIG. 2.



Right ventricle of the heart with a piece of shrapnel which arrived as an embolus. (War Office Collection.)

The heart represented in Fig. 2 was obtained from a soldier aged 23, who died after being wounded in several places, including the arm, chest, and knee. There was a hole in the right side of his chest, in the right leaf of the diaphragm, and in the inferior vena cava 2½ cm. below the place where the hepatic vein joins the caval vein. A flat piece of shrapnel, 2 cm. square and 12 mm. thick, lay in the right ventricle of the heart. There was no wound of the heart. The piece of metal, after piercing the chest wall and the diaphragm, entered the inferior vena cava and the blood current transported it to the heart. There was nothing in the clinical history to suggest that the piece of metal in the ventricle hampered the action of the heart. The man died from severe streptococcal infection. (Ritchie.)

The hepatic vein seems to be a convenient channel for metallic emboli; in the same collection there is a heart with a fragment of metal detained among the cords of the tricuspid valve. It belonged to a soldier wounded in the liver. There is a hole in the hepatic vein through which the missile reached in turn the vena cava, the right auricle, and the right ventricle, where it was detained.

A bullet loose in the cavity of the heart is swirled by the blood current.

The movements of shrapnel bullets in the cavities of the heart can be made visible by radioscopic methods. One

in the right auricle performed whirling movements in an elliptic orbit with a major axis of 2 cm. (Barret); another observed by Ledoux-Lebard in the right ventricle *s'agitait comme la bille d'un grelot*. Loblígeois detected a shrapnel ball in the left ventricle and watched its motion. In diastole the ball rested near the apex of the heart. During systole it slipped rapidly to the right, struck the septum, rose in the ventricle, remained still for an instant, and then descended slowly during systole till it reached the position near the apex of the heart from whence it started. The movements occurred with great rapidity.

A bullet in the right ventricle may be ejected and produce fatal pulmonary embolism.

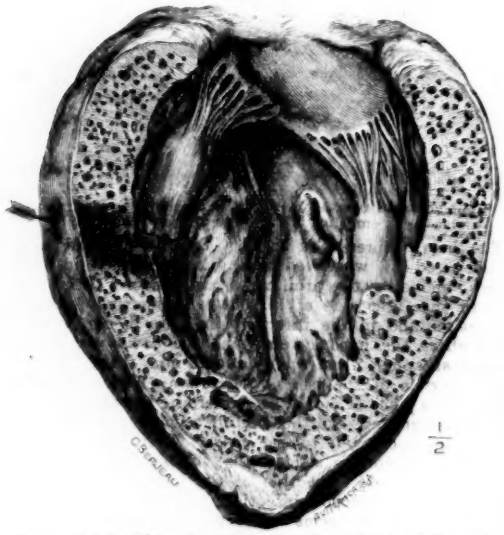
A German bullet (Spitzgeschoss) entered the left external iliac artery of a soldier and penetrated the adjacent iliac vein. The blood current carried the bullet along the big veins to the heart. It was ejected from the right ventricle and plugged the left pulmonary artery. The soldier survived these extraordinary sequences, including an amputation of the leg, 12 days. The iliac vessels and the lung are preserved in the War Office Collection. The clinical and pathological features of the case, carefully described by H. J. B. Fry, are worthy careful perusal.

A missile in the left ventricle may be driven into a systemic artery and produce ischæmia.

A boy, aged 18, shot himself in the heart with a 7 mm. revolver. There was much shock for some hours. Next day the lad complained of pain in the right arm and the limb presented signs of ischæmic paralysis and the bullet could be felt in the axilla. Ten weeks later the bullet was excised from the axillary artery: the vessel above and below the bullet was occupied by clot (Schloffer). In this instance it is probable that the bullet penetrated the chest, the wall of the heart, and lodged in the cavity of the left ventricle; it was then expelled as an embolus through the aorta, innominate and subclavian arteries to be impacted in the axillary artery. The ischæmia slowly disappeared. As this boy recovered, no exact facts are forthcoming as to the route in which the bullet entered the heart.

O'Neill had an opportunity of actually localising a missile in the left ventricle radioscopically and subsequently finding it in the common iliac artery.

FIG. 3.



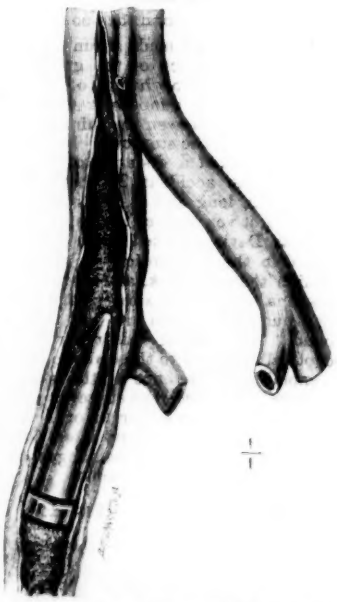
Left ventricle of a heart. A fragment of metal entered through its posterior wall, damaged the septal wall, and was expelled as an embolus. The heart shows changes associated with gas gangrene. (War Office Collection.)

A soldier was brought into a casualty clearing station badly wounded. He was screened and a missile was clearly visible in the left ventricle of the heart. Half an hour later symptoms of ischæmia appeared in the left leg, and a piece of metal was localised in the left common iliac artery. The man was suffering from gas gangrene and died five days after being wounded. There was a hole in the wall of the left ventricle, a ragged wound on the septal wall, and some cords of the mitral valve were torn. The heart muscle contained gas. (Fig. 3.) A piece of metal lay at the bifurcation of the left common iliac artery embedded in clot.

Missiles may enter a large artery and behave as emboli without entering the heart.

A soldier was wounded in the chest with a rifle bullet. Captain Blair evacuated four pints of effused blood from the chest and sewed up the wound. Streptococci were obtained in culture from the effused blood and the man died on the fifth day. Before he died, a bullet could be felt in the left external iliac artery. After death a small wound was found in the aorta just below the arch; this wound marked the place of entry and the bullet was driven as an embolus along the aorta into the iliac artery. Each end of the bullet is embedded in firm clot. (Fig. 4.)

FIG. 4.



Termination of the aorta and the iliac arteries; an embolic bullet is lodged in the external iliac. It entered the thoracic aorta. (War Office Collection.)

In the time of the Napoleonic Wars some English sailors were engaged in "cutting out" a French vessel in the Mediterranean. One of the seamen engaged in rowing a boat was wounded by a round-ball which hit the oar, ran along it, and entered the side of his chest. He was attended by Mr. Brunton, assistant surgeon, and survived the injury three days. The ball, which measured 1¼ in. in circumference, had penetrated the first part of the aorta and lay within its lumen embedded in clot. The hole in the wall of the aorta was partially closed by a plug of skin and fat carried in by the ball. The piece of aorta with the clot *in situ* and the ball are preserved in the Museum of the Royal College of Surgeons. The specimen was presented to the College by Stephen Hammick about the middle of the nineteenth century.

Penetrating bullet wounds of the aorta are not always fatal.

A Westphalian miner, aged 32, attempted suicide by shooting himself with a revolver. The bullet entered the left side of the chest near the seventh rib. After the injury there was no disturbance of the heart's action, and a radioscopic examination failed to furnish evidence of the bullet. An effusion in the left pleural cavity disappeared in a few weeks and the man recovered completely. Thirteen months later he was killed by an electric current in the course of his occupation. A bullet, 8 mm., was found in an aortic sinus. Just above the valve there was a scar in the wall of the aorta where the bullet had pierced it. The bullet was attached to the wall by a slender pedicle (Tegeler).

A study of bullet wounds in civil practice shows that the 7 mm. revolver bullet behaves in a remarkable way to the heart and big blood-vessels. It has perforated the heart and it has penetrated the aorta without causing death. When such a bullet penetrates a large artery it may be propelled along it by the blood current or slip along the vessel by its own weight until it becomes impacted in a section of the vessel too small to permit its passage; then ischæmia occurs with evil consequences.

Many men and women have survived wounds made by 7 mm. bullets which entered the body in the vicinity of big blood-vessels, and it is highly probable that the undiscovered tracks of many such bullets are even more remarkable than those disclosed in this essay. Of this we may be sure: there are missiles ensconced in curious situations in the bodies of soldiers that baffled the surgeons who sought for them, though aided by X rays, sharp scalpels, and zeal.

References.

Barret: Journ. de Radiologie, 1916, No. 1.
Davis, T.: Trans. of the Prov. Med. and Surg. Ass., 1834, ii., 357.
Ledoux-Lebard: Journ. de Radiologie, 1916, No. 1.
Lobligeois: Acad. de Méd., 1916, lxxvi., 364.
O'Neill, C. S.: Brit. Med. Jour., 1917, ii., 719.
Schloffer, H.: Beit. z. klin. Chir., 1903, xxxvii., 698.
Travers, F. T.: THE LANCET, 1906, ii., 706.
Tegeler: Münch med. Woch., 1909, lvi., 1740.
White, W.: Indian Annals of Medical Science, 1854, i., 294.

An Address

[IN ABRIDGED FORM]

ON THE

CONTINUED HIGH MATERNAL MORTALITY OF CHILDBEARING.

THE REASON AND THE REMEDY.

Delivered before the Obstetric Section of the Royal Society of Medicine, May 1st, 1919,

BY VICTOR BONNEY, M.S., M.D., B.Sc. LOND., F.R.C.S. ENG., M.R.C.P. LOND.,

ASSISTANT OBSTETRIC AND GYNÆCOLOGICAL SURGEON TO THE MIDDLESEX HOSPITAL; SURGEON TO THE CHELSEA HOSPITAL FOR WOMEN, ETC.

SOME STATISTICS.

THE yearly reports of the Registrar-General for England and Wales show that the death-rate directly and indirectly attaching to pregnancy and labour has diminished woefully little in the last 70 years.

England and Wales.

—	Births.	Deaths attaching to childbirth.		Deaths by sepsis.		
		Total.	Per 1000 live births.	Total.	Per 1000 births.	% of total deaths.
1917 ...	668,346	3236	4·84	916	1·3	28
1916 ...	785,520	3978	5·06	1147	1·4	28
1915 ...	814,614	4259	5·27	1253	1·5	29
1914 ...	879,696	4498	5·12	1422	1·6	31
1913 ...	881,890	4296	4·87	1173	1·3	27
1912 ...	872,737	4321	4·95	1280	1·4	28
1902 ...	940,509	4205	4·4	2003	2·1	47
1892 ...	897,967	5194	5·78	2356	2·6	45
1880 ...	881,643	3492	4·0	1659	1·8	47
1870 ...	792,767	3875	4·9	1492	2·8	38
1860 ...	684,048	3173	4·6	978	1·4	31
1855 ...	635,043	2979	4·7	1079	1·7	36
1850 ...	593,422	3252	5·5	1113	1·8	34
Scotland.						
1915 ...	114,181	698	6·1	262	2·3	37
1914 ...	123,934	746	6·0	288	2·3	38
1913 ...	120,516	708	5·9	201	1·6	29
1912 ...	122,790	675	5·5	231	1·9	34
1911 ...	121,850	699	5·7	214	1·7	30
1910 ...	124,059	710	5·7	229	1·8	32
1909 ...	128,669	699	5·7	214	1·7	30
1908 ...	131,362	676	5·1	241	1·8	35
1907 ...	128,840	686	5·3	235	1·8	34
1906 ...	132,005	717	5·4	275	2·0	38
1880 ...	124,570	620	4·9	204	1·6	33
1870 ...	115,390	583	5·0	202	1·7	34
1860 ...	105,629	564	5·3	236	2·2	41

It is to be noted that the ratio is between the number of maternal deaths and the number of live births and not the number of labours or pregnancies.

The excessive maternal mortality from childbearing in the United Kingdom and its scanty diminution was forcibly commented on by Sir A. Newsholme in a report on the subject in 1915.[1] He therein showed that a high maternal mortality is associated with a corresponding increase in the number of still-births and of infant deaths in the early weeks after birth. He gave the following figures as the then averages—

In England	1	maternal death for every	210	registered births.		
In Ireland	1	,, ,, ,,	191	,,	,,	
In Wales	1	,, ,, ,,	179	,,	,,	
In Scotland	1	,, ,, ,,	175	,,	,,	

and stated that "on general grounds there can be no reasonable doubt that the quality and availability of skilled assistance before, during, and after childbirth are probably the most important factors in determining the remarkable and serious differences in respect of mortality in different districts."

Now whichever way these figures are viewed they are thoroughly unsatisfactory, for they show that over a period during which enormous advances have taken place in every other branch of our profession, obstetrics alone, as judged by its results, has advanced very little. Something is wrong somewhere, and this applies not only to British obstetrics but to obstetrics all over the civilised world.

In a very exhaustive and important report by Dr. Grace Meigs, of the Department of Labour of the United States of America,[2] it is shown that during the 23 years ending 1913 no definite decrease in the death-rate of childbearing can be demonstrated in the death registration area of the United States.

Further, it is shown from a study of the death-rates of 15 foreign countries that only five of them—England and Wales, Ireland, Japan, New Zealand, and Switzerland—have effected any diminution in the mortality of childbearing in recent years, and of these England and Wales and Ireland are the only ones that show a falling off in the percentage of deaths due to puerperal sepsis.

It is to be remembered that of the total deaths an undue proportion follow first pregnancies and labours, because puerperal sepsis and pregnancy toxæmia, which, as we shall see, are the two chief causes of death, are conditions which specially afflict women bearing children for the first time. The death risk of these, therefore, is considerably greater than the general averages given.

THE CHIEF CAUSES OF DEATH.

What are the chief causes of death directly due to pregnancy and labour? A perusal of the English and Welsh figures for 1912–1915, which may be taken as characteristic of all years, shows that in importance they rank as follows: (1) sepsis, including phlebitis; (2) pregnancy toxæmia, including nephritis, eclampsia and vomiting; (3) hæmorrhage, either before, during, or after labour; (4) embolism and other causes of sudden death.

The numbers of deaths due to these causes in the years named are as follows:—

—	1912.	1913.	1914.	1915.
Total deaths directly due to pregnancy and labour	3473	3492	3667	3408
Deaths from—				
Sepsis	1280	1173	1422	1253
Pregnancy toxæmia	662	797	787	663
Hæmorrhage	610	616	595	556
Embolism and sudden death ...	298	267	275	242

Sepsis.

Puerperal sepsis, including under that term septicæmia, pyæmia, phlebitis and all its other manifestations, is thus seen to be still by far the commonest cause of death. The figures would probably be higher still did they include every case in which bacterial infection of the birth canal determined the fatal issue. For in the tables of death not

[1] A Report on Maternal Mortality in connexion with childbearing: 44th Annual Report Local Government Board, 1914–15.

[2] Maternal mortality from all conditions connected with childbirth in the United States and certain other countries, 1917.

directly due to, but associated with, pregnancy, it is seen that pneumonia and influenza figure largely, a suspicious circumstance, seeing how often pneumonia is the most striking feature of puerperal sepsis and how frequently in septic cases the mistaken diagnosis of influenza is made.

Moreover, surgical experience has shown that embolism after operations is probably in most cases due to slight sepsis; for if the charts of patients thus dying be examined it will usually be found that the temperature has been slightly abnormal for some days preceding the catastrophe. Further, the frequency of sudden death after operations by embolism has diminished of recent years concurrently with the improvement in rapidity and smoothness of convalescence which modern surgical technique has achieved.

Septic infection of the wounds caused by labour will probably never be entirely abrogated, because in a certain proportion of the cases the process is one of auto-infection. Nevertheless, in by far the greater number the infection is carried into the birth canal by fingers or instruments, a largely preventable occurrence.

During the ten years 1906 to 1915 the mortality from septic infection in England and Wales has remained very nearly constant, but with a slight tendency to fall. In Scotland, however, although the material difference is small, the figures indicate a slight tendency to rise. Comparing the years between 1870 and 1902 with those between 1906 and 1915 we find, however, that in England and Wales there has been some improvement. Thus the mortality due to sepsis per 1000 births was in 1902, 2·1; in 1892, 2·6; in 1880, 1·8; and in 1870, 2·8 per 1000 births; whereas in the ten years 1906 to 1915 it never exceeded 1·7 per 1000 for any one year.

Listerism and Puerperal Sepsis.

The year 1870 brings us back to the initiation of "Listerism," and one would naturally suppose that in the years prior to this great event the mortality from puerperal sepsis would be found to be considerably higher than in the years after it. But, and this is a very striking circumstance, the registrarial figures show nothing of the kind; on the contrary, in the year 1860 the death-rate from sepsis is returned at 1·4 per 1000 births, a figure as low as any of those of recent years except 1913, when it was 1·3. No doubt it may be argued, and with justice, that in these earlier times certification was much less accurately carried out than nowadays, and that in all probability many deaths really caused by puerperal septic infection were not recognised as being due to such. But after every excuse has been made and every explanation offered in the attempt to adjust to our satisfaction these jarring figures the uncomfortable question still suggests itself: Have we so much improved on the practice of pre-Listerian days that we have a right to expect greatly improved results?

It is true that devastating epidemics of puerperal septicæmia no longer ravage our lying-in hospitals, and that from being the most dangerous places for labour to take place in they are now become the safest. But, after all, the number of women confined each year in lying-in hospitals forms such a trivial proportion of the yearly total of confinements in the country at large that even so great a reduction in the institutional death-rate as has been accomplished in the last forty years would not markedly affect the death-rate of labour in general.

The diminution that has been effected in the death-rate of institution-conducted labour has been so dramatic that it has obscured the wider issue, and most of us if asked whether obstetric practice had not greatly improved in the last 40 years would, thinking in terms of the lying-in hospital, have returned an emphatic affirmative. But the hard figures dispel this comfortable delusion. They show that the great wave of progress initiated by Lister and swelled by the host of workers in surgery treading after him has passed over obstetric art and left it not greatly changed. Taking the conduct of labour in general, not much more than a bowl of antiseptic lotion stands between the practice of to-day and the practice of the "sixties." But a bowl of antiseptic lotion is not Listerism, though it was misconceived as such by many of the older surgeons in the "seventies" and early "eighties," and apparently, with the addition of rubber gloves, is still misconceived as such by many obstetricians up to the present day.

Problem of Prevention of Sepsis.

The principle of antiseptic surgery as conceived by its great founder was the creation of aseptic conditions—in the wound primarily, and therefore as a corollary in all that surrounded or touched the wound. Now the problem of how to achieve such conditions is an exceedingly difficult one, even as regards those regions of the body most favourable for its accomplishment, and most of all difficult in connexion with labour; and yet the immense amount of thought and endeavour that has been expended on the effective application of the antiseptic principle, as far as recognised surgery is concerned, stands in marked contrast to the apathy on the subject which distinguishes the practice of obstetrics.

One reason for this is that that method of infection of the birth canal wherein septic organisms are conveyed from individual to individual has received disproportionate attention, probably because it is the most obvious and was responsible for the striking epidemics that afflicted lying-in hospitals in the past. But even in those days by far the larger proportion of the cases of puerperal sepsis were probably due, as they are now, to infection by the bowel organisms of the patient herself; for special conditions of propinquity and rapid carriage are necessary for infection from extrinsic sources, and such only obtain in the minority of labours.

The problem of preventing extrinsic infection, moreover, is relatively simple as compared with the prevention of infection from intrinsic sources; for example, the wearing of sterile-rubber gloves practically renders impossible the conveyance via the attendants' hands of organisms from one patient to another, but it in no way diminishes the possibility of the carriage of anal organisms into the vagina.

Thus, although the antiseptic measures employed in lying-in hospitals fall far short of those in use in general surgery, they have sufficed practically to abolish extrinsic infection, in spite of the fact that the first requisite for its extensive occurrence, the collection of a number of patients under one roof, remains as before. But intrinsic infection producing more or less pyrexia is quite common still. The symptoms are rarely severe, however, for the infection is probably considerably modified by the antiseptic measures taken, and, moreover, the cases are promptly treated.

In home-conducted labour, on the other hand, in which extrinsic infection was probably always a subordinate cause of puerperal sepsis, the adoption of antiseptic measures on the average considerably less thorough than those employed in lying-in hospitals, though potent to a certain extent against extrinsic infection, has had little effect on the far commoner intrinsic infection, against the occurrence of which nothing less than a most elaborate antiseptic technique will suffice.

Morbidity due to Sepsis.

Besides the immediate loss by death of a number of fertile women each year, the scarcely diminished prevalence of puerperal sepsis is of national importance on account of the far greater number of cases of acute illness that it occasions short of death. It is impossible to assess accurately the mortality of the disease in relation to the number of persons attacked, because only the worst examples, as a rule, are officially certified. Taking all cases of severe illness however caused thereby, I believe that a death-rate of 20 per cent. would not be far from the mark—that is, that for every one woman that dies four more are very seriously ill.

This morbidity is injurious to the nation in three ways: firstly, the community is constantly deprived of the working activities of a certain number of its members; secondly, a considerable proportion of these women are rendered sterile by the disease, whilst others are discouraged from further childbearing; and thirdly, a certain number of children perish because they have to be withdrawn from the breast.

Other Causes of Death.

Pregnancy toxæmia.—By far the larger number of deaths falling under this head are caused by pregnancy nephritis and eclampsia, pernicious vomiting on the average only accounting for between 30 or 40 deaths per annum in England and Wales. There are rare case of eclampsia in which the onset is absolutely acute and without any premonition whatever, but in by far the larger number forewarning signs, such as albuminuria, headache, or vomiting,

are present for some considerable time before the onset of the fatal seizure. Most of the deaths from eclampsia are either the result of failure to observe the premonitory signs, or to adopt the right treatment when the condition is obviously declared, and the same applies to the deaths from pernicious vomiting.

Hæmorrhage.—About two-fifths of these deaths are due to placenta prævia, the remainder to other forms of ante-partum hæmorrhage and to post-partum hæmorrhage. Deaths from hæmorrhage in pregnancy and labour are almost entirely preventable. In lying-in hospitals, where skilled supervision of labour obtains, practically the only deaths from this cause are those in which the patient is admitted having already lost a great quantity of blood.

Embolism and sudden death.—The probable relation of embolism to latent sepsis has already been commented on. Certain of the cases classified under the above head may possibly be due to such disasters as rupture of the uterus, but, beyond all gross physical causes, death from sudden heart failure occurs occasionally after labour, not only in women, but in the lower animals. These deaths from unexplained cardiac failure must be looked upon as unpreventable in the present state of our knowledge.

MIDWIFERY A SURGICAL ART.

If it be true, then, as it undoubtedly is, that of the number of deaths directly due to pregnancy and labour the greater proportion could be prevented, the undiminished yearly mortality constitutes a standing reproach to the community at large and to the medical profession, and in particular to the teachers of obstetrics. The remedy lies in nothing less than a radical change in the conception of midwifery both by the profession and the public, and a complete revision of the attitude of thought that dominates the teaching and practice of the art.

Pregnancy is a state induced by the growth of a neoplasm; labour is a process accompanied by self-inflicted wounds, and the puerperium is the period of their healing. Midwifery concerns itself with the treatment of these three and is a pure surgical art, for the diseases of the new-born child are the province of the physician. The product of conception causing hepatic breakdown, or renal disease, or convulsions, or menacing hæmorrhage, or pelvic impaction is no less a life-endangering neoplasm than a hydatid cyst, an adrenal tumour, a glioma, a uterine fibroid, or an incarcerated ovarian cyst, and the problem of its treatment is a surgical problem. Normal unassisted labour is an operation that the patient performs on herself, and should have the environment proper to any other operation that involves a breach of surface. Still more is this necessary in cases in which manipulative interference or operative assistance may be required.

BUT NOT RECOGNISED AS SUCH.

Unfortunately the conception of midwifery as a department of surgery is still very far from being established. Let us examine the reasons.

Founded on the art of the female midwife obstetrics is the oldest special branch of our profession, but, unlike the others, it arose not as an offshoot, the result of the exuberant growth of medical knowledge, but more or less as an independent subject, which in process of time became grafted on to the main stem. That that process is not yet complete is shown by the fact that medical art is still divided into three primary divisions—medicine, surgery, and midwifery—some examining bodies even granting a separate diploma in the last named subject.

The isolated position of midwifery is early brought to the notice of the medical student. His text-books of physiology do not deal with the function of reproduction; the diseases and disasters of childbearing receive no mention in the lectures on general pathology; the obstetric curriculum is divorced from the rest of his studies as though the morbid processes with which it concerns itself were fundamentally of a different nature to the rest of disease. He sees in some institutions its exponents, though styled physicians, practising their calling almost entirely by operative means. In the theatre attached to the lying-in wards he witnesses labour conducted with the circumstances of modern surgery, whilst in the extern department he finds the same procedures carried out under conditions which would make any of the operations of recognised surgery unjustifiable.

He finds that at the London University the M.D. degree may be taken in obstetrics and that an essential feature of the examination is a paper, *not* on surgical pathology but on general medicine including tropical medicine!

What wonder, then, if, in the face of all these anomalies and contradictions, a conception of midwifery as a separate art, to which the tenets of surgery only partially apply, grows up within the student; from him passes on to the practitioner, and finally reaches the public.

THE CONSEQUENCES.

The ill results that follow from this false conception are accentuated by those flowing from another error perpetuated by the foolish reiteration of the word "natural" as applied to childbearing, without comprehension of all that "natural" implies.

Childbearing *is* a physiological process, but it stands alone amongst such in that, while the rest of them are exercised on behalf of the individual, reproduction occurs for the benefit of the race and at the cost of the individual. The toll thus levied on the female is exacted from civilised and uncivilised women alike; animals, whether domesticated or wild, whether high or low in the scale, do not escape it.

These two errors are responsible for maintaining great public ignorance of the necessity for proper supervision during pregnancy and pre-arrangement against the time of labour, and, as a corollary, a disinclination to spend on those events an amount of money commensurate with their importance.

In the practice of recognised surgery the medical man postulates certain surroundings and accessories as a necessity for the successful performance of his work, and without them, except under great emergency, he refuses to undertake the case. Moreover, the public, educated as regards recognised surgery, supplies his requirements without demur, or being unable to do so, appreciates at once the necessity of having the patient transferred to a hospital or home.

But in obstetrics a vicious circle obtains. The want of understanding of the dangers of childbearing and the "surgicalness" of midwifery results in the public underrating the requirements of the art. Hence has been established a custom by which childbirth takes place under conditions that sicken the surgical soul. The attitude of the public in turn reacts on the medical man. He finds, when he begins practice, that it is customary to conduct labour under conditions that he feels to be faulty, but in the face of long usage, he hesitates to undertake the task of changing them.

The conversion of the lying-in room into some semblance of an aseptic operating theatre, efficient assistance, and an independent anæsthetist are looked upon by many as academic ideals—unessential and not to be pressed for in everyday work. There are still in all great cities numbers of houses unfit for the habitation of human beings. In such surroundings, with insufficient material, scanty light, and inadequate assistance, the difficult operations of obstetric surgery are frequently performed and no vigorous voice is raised in protest against the custom.

But the absence of the conception of the "surgicalness" of midwifery is by no means limited to the poorer classes. Consider the average lying-in room in the average middle-class house. A double bed, unwieldy and inconvenient, is the first object that strikes the eye. By the side of it stands a commode. In one corner is the baby's cradle, in another is the cast-clothes basket, in the third is the washstand, and upon it tooth-brushes, bottles of hand and hair lotion, and the husband's shaving materials. The dressing table absorbs much of the floor of the room and most of the light of the window. It is littered with brushes, combs, hairpins, trays, boxes, photograph frames, wisps of shed hair, and such like rubbish; in the midst of which a bowl of antiseptic solution, in which some blobs of white wool have been immersed, stands forlornly. A large wardrobe, three chairs, and a chest of drawers, the top of the latter piled up with books, knicknacks, and various odds and ends, obtrude themselves on the already limited space. The mantelpiece exhibits multifarious articles, none of them bearing any reference to the matter in hand except a bottle of Three Star brandy, a feeding cup, and a clean soap-bowl containing the time-honoured but ridiculous sheaf of threads for tying the cord. Under the dressing table are several pairs of boots; whilst airing in front of the fire, partly on the fender and partly on the floor, is a heap of baby-linen.

Amidst these surroundings lies the unfortunate woman on whom a surgical operation fraught with very definite risks

may presently be required to be performed. Were the nature of it any other than obstetrical the room would not be left in a state of such utter unpreparedness, but would be cleared and converted as far as possible into an impromptu operating theatre.

PREGNANCY CONSIDERED AS AN ABDOMINAL NEOPLASM.

The product of conception is as truly a neoplasm as any other uterine tumour and should be regarded as such. It differs from the rest of them only in this, that it usually undergoes spontaneous cure. But even in this regard it is not peculiar, for a uterine fibroid may be expelled or be absorbed. In all other respects it is strictly comparable with the other new growths. It may become malignant or be malignant *ab initio*. It may become infected, impacted, or twisted. It may rupture into the peritoneal cavity, or cause pressure symptoms by its size. It may give rise to severe hæmorrhage or undergo pathological changes as a result of which the possessor suffers from acute toxic absorption, and its final expulsion may be accompanied or followed by shock, hæmorrhage, or sepsis.

In the present state of our knowledge we have no specific treatment for the results of abnormal pregnancy beyond surgery. When the neoplasm is endangering life, it must be got rid of, and at all times seeing its potentialities for harm, its possessor must be kept under medical supervision.

LABOUR CONSIDERED AS AN OPERATION.

Labour, even normal labour, should be considered as an operation. The first requisite for safety, therefore, is asepsis of the operation area, or birth area, as we will call it. The vagina should be regarded as a wound, into which the passage of anything unsterilised, in a fumbling, half-sighted manner, and without previous antiseptic preparation of the surrounding skin, is a hideous transgression of the ritual of modern aseptic surgery. And under the term obstetric operation I would include not merely the more obviously mechanical procedures, such as forceps extraction, craniotomy, and so on, but every manual assistance to delivery, even if it run to no more than the hooking down of an arm, a single stitch in the perineum, or a vaginal examination.

The wearing of boiled rubber gloves during the conduct of labour has become increasingly common of recent years. A layer of rubber between the hand and the patient prevents the transference of organisms from one to the other. So far so good. But organisms from the patient's skin, or from bedclothes, furniture, or any other unsterilised surface, are carried as well by the gloved as by the ungloved hand, and it is the organisms from these sources, and particularly the patient's skin, that are, and always have been, the chief agents of puerperal sepsis.

With the anus as a centre there exists a zone over which intestinal organisms are spread with a lessening intensity from centre to periphery. That is the reason why the likelihood of infection of a wound increases the nearer it is to the anus. This was strikingly exhibited, to my own observation, in the wounds in the late war. All must have noticed that when a game bird or hare is hung it is the inner and upper thigh which first becomes "high." Now nature has made the mistake of placing the birth area almost in the middle of this danger zone. The problem set us is how to prevent or minimise the results of this mistake.

Sterilisation of Birth Area.

To prevent the conveyance of organisms from the adjacent skin into the wound the up-to-date operator in recognised surgery prepares the skin beforehand with powerful antiseptics and further attaches towels or rubber sheeting in such a way as to cut the skin out of the operation area altogether. It is urgent that such principles be applied to labour, for the skin of the ano-perineal region is the most heavily infected of any skin area in the body.

The recent introduction of the non-irritant yet powerful antiseptics belonging to the aniline group goes far to place at the service of the obstetrician the means of achieving sterility of the birth area. The investigations carried out by Dr. C. Browning and myself showed that sterilisation of the ano-perineal area could be effected by the use of "violet-green," and I have suggested that during labour this antiseptic should be applied by compress to the vulvo-perineal skin until such time as the head is about to be born. Further, I think that this antiseptic should be used as a lubricant every time a vaginal examination is made, and before any operative procedure is undertaken within the vagina the canal should be thoroughly swabbed out with it. It has been objected that the baby's head will be stained, but this is a small price to pay for protection against sepsis. Instead of violet-green, flavine can be used, the colour of which is not so aggressive, while it is nearly as powerful an antiseptic.

Such measures would go far towards sterilisation of the birth area, but a danger remains—namely, that due to the eversion of the anal canal and the expression of mucus or fæces during the last phase of the second stage. Provided that the lower bowel had been thoroughly emptied beforehand, I conceive it may presently be possible to insert into the rectum a suppository composed of one of these non-irritant antiseptics sufficient to sterilise a mere escape of rectal mucus. As, however, absolute sterility of the anal region will probably never be able to be effected, we must seek to cut the anus out of the birth area. This can be done by fixing over it, either by clips or stitches, a large gauze pad soaked in a strong non-irritant antiseptic. It is impossible to fix sterilised towels round the orifice of the vagina in the same way as they are fixed to the edges of an operation wound.

Maintenance of Asepsis.

Having created a state of asepsis in the birth area, the next point is to keep it aseptic. This is attained by rendering sterile all that is to come in contact with the birth area and all that environs it. The problem is simple compared with that which we have just considered, for we have only to copy the ordinary arrangements of a modern operating theatre. The lying-in chamber should be cleared as in preparation for a surgical operation. All maternity nurses should be thus instructed. At the present time not 1 in 50 does so. This is partly due to want of teaching, and partly to the ignorance of the patient and her relatives, who object to the removal of the bedroom trumpery. This is a matter for education.

The obstetrician must, of course, be gowned and gloved as befits a surgeon engaged in an operative procedure in which the avoidance of sepsis is all-important. At a cost of less than a sovereign a tin containing a complete outfit of sterilised gowns, towels, swabs, and gauze can now be obtained. The day will come, I hope, when public opinion will cause them to be at the free service of the poor. Without such an outfit the aseptic conduct of labour is impossible, and the layman, niggardly of all expenditure where childbirth is concerned, must be made to realise that no money is ever better spent.

And still considering labour as a surgical operation I now pass to another necessity for its proper conduct: the birth area must be *accessible*. In the second stage of labour the side posture is that always adopted in this country, but it is a bad one, for it gives a poor exposure of the parts for purposes of sight and touch, and, by placing the anus nearest to the attendant, renders more likely the conveyance of bowel organisms into the vagina. For all operative purposes, except Cæsarean section, even for examination only, the lithotomy position is the proper one. If the patient is not anæsthetised she should be placed across the bed with her feet on a couple of chairs or rests. But when under an anæsthetic she should be secured by Clover's crutch, or the leg rests of an operating table.

The idea of a surgeon performing curettage or ligaturing piles without an anæsthetist is admittedly ridiculous, but in obstetric work the practitioner, still to this day, is frequently diffident of asking for such assistance, because by custom the public expects him to combine the offices. Now an absolute necessity, in the problem of how to render aseptic the technique of assisted labour, is an independent anæsthetist. Even where the anæsthetic is to be administered merely for the sake of relieving the patient's sufferings during the last phases of the second stage, it should not be given by the obstetrician, for at any minute it may be necessary for him to turn his attention to the birth area. Equally faulty is the practice of the nurse acting as administrator and leaving the medical man to manage the delivery unassisted. Both these methods are irreconcilable with an aseptic technique even in a straightforward case, whilst in circumstances of difficulty or emergency the result is hopeless chaos. Further, it is impossible for the obstetrician properly to guard his gloved hands against contamination unless he has, besides the anæsthetist, efficient assistance.

For the proper conduct of assisted or operative delivery four person are required—the operator, the anæsthetist, and two assistants, one or both of whom may be nurses, provided they are properly trained.

Finally, we have to consider the action of the obstetric surgeon himself and the principles that we, as obstetric teachers, need to impress upon him. *Given that every factor in the labour is normal, the safest method of delivery is self-delivery, free of any interference with the birth canal whatever.* Patients deploring the fact that the child was born before the arrival of the attendant have sometimes reason to bless their good fortune instead. Every manipulation within the birth canal, even the single examination to determine the position of the presenting part, carries with it a definite risk of conveying sepsis, which must be balanced against the advantages of the interference. This does not imply that there is no possibility of sepsis after absolute self-delivery. Sepsis by auto-infection may and does occasionally follow such labours, but it is rare. It follows, therefore, that interference in labour should never be undertaken needlessly. But—and this is the point so essential to be taught—when interference is necessary, either on account of obvious abnormality, or doubt as to the exact state of affairs, it must be carried out with *surgical thoroughness.* More harm has been done by single, slovenly, internal examinations than by all the deliberate set operations of obstetrics put together.

Let it not be thought that I am imputing lack of skill to the practitioner in general. Far from it. The skill is there, but it is discouraged by the absence of the accessories and conditions necessary to make it effective.

THE PUERPERIUM CONSIDERED AS A PERIOD OF POST-OPERATIVE CONVALESCENCE.

The wound in the uterus left after the separation of the placenta is entirely comparable with that left after the vaginal enucleation of a large uterine fibroid, and the perineal wound caused by the child's head with that incurred in the performance of plastic enlargement of the vaginal orifice. The wounds of labour are more likely to become infected than those of the gynæcological operations I have cited, because labour is a larger operation involving more bruising of the tissues, and, under present conditions, is not performed under anything like the same conditions of surgical sepsis. Moreover, sepsis, if it occurs, tends to run a much more severe course, because of the enormous venous and lymphatic hypertrophy that accompanies pregnancy.

The general management of puerpery should be conducted in the same way as the convalescence after any other vaginal operation. The wound in the uterus is inaccessible and we have no means of dressing it, but we can help to secure drainage by propping the patient up in bed. The perineal wound, if it was aseptic when it was sutured, needs no dressing. I believe that it is very rare for any wound to become infected *after* it has been sutured. But to close an already infected wound is disastrous.

The teaching that has for a long time obtained in text-books that all perineal lacerations should be sutured, urgently requires to be supplemented by the proviso that, before doing so, they must be sterile, otherwise it is far better to leave them open and at least secure drainage. To close up with sutures an insignificant perineal laceration which is already infected by the passage over it of fingers recently contaminated by the anus, directly makes for serious sepsis. That recently infected—even heavily infected—wounds can be sterilised before suture by the application of antiseptics has been proved conclusively during the war.

Septic perineal lacerations can be treated by the direct application of antiseptics, but for sepsis of the placental site we have at present no treatment beyond supporting the patient's strength—and he who thinks otherwise deceives himself.

Mistaken Treatment of Puerperal Uterine Sepsis.

The whole teaching on the subject of the treatment of puerperal uterine sepsis needs to be revised. Consider the problem. The patient is suffering from the effects of an acute toxæmia originating from organisms sequestered in the uterine sinuses, veins, and lymphatics, and perhaps in other situations still more remote from the uterine cavity. To remove or kill the organisms or neutralise their toxins is the only solution of the problem, and we can at present do neither the one nor the other.

Instead, what is done? The uterine cavity is douched or explored with the finger and scraped, a futile proceeding, for the organisms in the cavity are not those causing the symptoms. But it is worse than futile, it is dangerous; for the necessary manipulation frequently dislodges thrombi and liberates organisms into the blood stream at large. The rigor that so frequently follows these proceedings is characteristic of the entry of injurious matter into the circulation—you see it in malaria when the stretched blood corpuscles rupture and the spores escape, and after intravenous infusion, especially of foreign serum.

I have over and over again seen cases of relatively slight puerperal fever converted into examples of virulent sepsis by these mistaken methods of treatment. They are perpetuated by the continued teaching of that gross error that puerperal sepsis is commonly caused by fragments of the gestation retained in the uterus. It is astonishing how blindly unobservant we all are and how stiffly we become obsessed with what is taught us, though it fly in the face of the obvious. *There are no gross pieces of placenta retained in the uterus in puerperal sepsis; not once in a hundred times.*[3] We must get rid of all that German teaching about "septicæmia" and "sapræmia," and the "germs that flourish on dead tissue" which is so dear to the heart of the student, and start to think for ourselves.

Puerperal Sepsis Considered in Light of Treatment of War Wounds.

The placental site infected by organisms originally derived from the bowel is from the pathological standpoint exactly comparable with the infected wounds of the late war. Gas gangrene is uncommon in puerperal sepsis, because the muscle of the uterus is unstriped, and *B. aerogenes* flourishes chiefly in striped muscle; while, moreover, the extensive bruising and laceration that in war wounds aids the development of this organism is absent. But in all other respects the obstetrician has always been familiar with those results of profound wound sepsis, which have come as a surprise and a revelation to a generation whose experience has been limited to the results of wounds as modified by the practice of Listerism.

Owing to the anatomical position of the placental site, the methods which in the later phases of the war were applied with such conspicuous success to infected bullet and shell wounds, are only very partially applicable to the major wound of labour. These methods were of three kinds: (1) the immediate sterilisation of the wound by strong antiseptics before the infection had time to become profound; (2) progressive sterilisation of wounds already profoundly infected by the continuous application of antiseptics until such period as the wound became aseptic, after which closure might be effected (Carrel); (3) immediate excision of the whole wound before the organisms implanted in it had time to multiply at all.

The first method has a scope in these cases in which it is known at the time of the labour that the uterine cavity has probably been infected as the result of intra-uterine manipulation or instrumentation. In such it is possible by the immediate application of a strong antiseptic to destroy the infecting organisms. The antiseptics of the aniline group are peculiarly suitable for such immediate sterilisation.

The second method, which was developed by Carrel and Dakin with most successful results, is not capable of satisfactory application to the profoundly infected placental site, for more is demanded than the mere continuous application of an antiseptic. Previous excision of the wound, or, if this be impossible, very thorough cleaning up of it, together with removal of all damaged and dead tissue, and the freest drainage is required. It is impracticable to do this in severe puerperal sepsis, for the placental site is too inaccessible to allow of thorough cleaning up, whilst excision of it is impossible short of removing the uterus and by the time the patient is sufficiently ill to suggest such a drastic step the organisms have, as a rule, spread beyond the uterine wall. Moreover, the technical difficulties of arranging irrigating tubes so as to be sure of reaching every part of the infected uterine surface are great. The method might be successful could it be carried out in the earliest stages of puerperal infection, but the manipulations necessary to the proceeding

[3] I am referring to gross pieces of placenta, not to the soft debris which can be scraped out of any puerperal uterus septic or not septic.

carry with them a risk of dislodging infected thrombi, which probably outweighs the advantages to be gained.

The third method, which was the culminating achievement in the treatment of war wounds, is utterly inapplicable to the major wound of labour. It would necessitate the performance of hysterectomy at the close of every confinement in which there was a possibility of infection of the placental site.

The attempts that have been made to destroy the organisms of puerperal sepsis or neutralise their toxins by antidotal sera, vaccines, and the intravenous injection of bactericides have all up to the present been dismal failures. It is true that many patients thus treated recover, but so do patients not so treated. All of us are a great deal too much inclined to mix up *post* and *propter hoc*. My own opinion after an extensive trial of all these methods of treatment is that they are useless.

A method of curing puerperal sepsis will, doubtless, be discovered in the future, but until then prevention is our only weapon. And thus I come back to the urgent necessity for regarding labour as a surgical operation fraught with risks of sepsis *against which nothing short of a very elaborate antiseptic technique will suffice.*

CONCLUSIONS.

The conception of midwifery as a surgical art necessitating for its successful prosecution the full gamut of modern surgical requirements implies nothing less than a complete alteration of the conditions under which it is at present practised, and until this change is accomplished no satisfactory diminution of the mortality of childbearing can be expected. The coöperation of the public is essential, and this will not be secured until it is made to understand that the national and individual advantage accruing from the change are worth the large sum of money which will have to be spent on it.

In the present state of affairs the slight demands made on behalf of his art have resulted in the public habitually underpaying the obstetrician, though the outfit and skill demanded of him are at least as great as those required in other departments of surgery, while the time, trouble, and general wear and tear that attendance on a confinement involves is out of all proportion greater. *Midwifery, in fact, does not pay*, except in so far as it serves as an introduction to other forms of practice; a pernicious thing, for underpaid work can never be the best work.

On the other hand, it is essential that the monetary cost of childbearing—cost to the husband and wife I mean—shall not be so high as to discourage reproduction. It may with much justice be argued that the expenses of childbirth up to a certain equitable figure should in all cases be borne by the nation to whose advantage the child is brought into the world.

The passing of the Midwives Act and the recent establishment of ante-natal clinics in many parts of the country are both steps in the right direction, but much more is needed.

A midwife single-handed, still less than a doctor single-handed, does not comply with the requirements of labour, which, like any other operation, demands "team work" for its proper conduct.

Proposed National or Municipal Lying-in Hospitals.

No figures are available giving the yearly number of recognised surgical operations performed in this country, but the total must be considerable. The larger proportion of them take place in hospitals, a smaller proportion in nursing homes, and the remainder in private houses.

When the public has been made to understand that labour itself is a surgical operation there will be a similar distribution of confinements. This will necessitate the establishment of large lying-in hospitals all over the country, maintained out of public funds, either national or municipal. Besides free beds there should be paying wards and separate rooms for such as can afford them, the amount to be paid being arranged according to the patient's financial position, judged, perhaps, on their rate assessment.

These hospitals should be the centres for the teaching of midwifery, both to medical students and midwives, the former of whom should be resident in them for at least three months. Extern departments as they are at present carried on should be abolished. They perpetuate all the worst features of midwifery as practised to-day—the inadequate surroundings, the wretched light, the meagre assistance, and the dirt, and lead the student to think that the régime of the labour ward is an academic ideal unrealisable in general practice.

Women unable or unwilling to enter the lying-in hospital would fall into two classes, firstly, those whose means enabled them to command the necessities for the surgical conduct of labour in a nursing home, or in their own home; and, secondly, poor patients whose entry into hospitals was impossible on account of domestic reasons or the sudden onset of unexpected labour. This latter class might be dealt with by having attached to the central hospital an extern team—i.e., an obstetric surgeon, an anæsthetist, and two nurses, with a complete outfit and a motor-car to carry them. The team should be able to be summoned free by the medical man or midwife in attendance on the case, for given such a team the requirements for the surgical conduct of labour could be constructed in the poorest room, just as they can be for an emergency operation in recognised surgical practice.

In the staffing of these large hospitals the medical men of the town or district should take a large part and be paid for doing so, but a certain number of resident obstetricians would also be required. Patients taking private rooms should be attended by their own medical man and should pay him an adequate fee. The permanent resident staff should be at his service and should coöperate with him in the conduct of the labour, the routine of which he would already be quite familiar with, having been trained in that or a similar hospital.

Such is a rough sketch of what is required before we can hope to see a progressive diminution in the mortality of childbearing comparable with that already effected and continuing to be effected in every procedure of recognised surgery. Let me not be misunderstood. I want to see midwifery not necessarily more "operative," but more "surgical," which is quite another thing. I want to see it taught and practised as a branch of surgery.

THE CARE AND TREATMENT OF CASES OF MALARIA.

BY COLONEL SIR RONALD ROSS, K.C.B., K.C.M.G., F.R.S.,

CONSULTANT IN MALARIA, WAR OFFICE AND MINISTRY OF PENSIONS.

I.—IN FRANCE.

DURING 1918 20 battalions of British troops, all more or less heavily infected with malaria, were transferred from Eastern fronts to France. On arrival in France from July onwards all these battalions were found to be too ill for the firing line and were therefore put into camps (generally canvas) within the same area, and were then subjected to a strict course of quinine combined with exercise, all under rigid discipline. The course lasted about ten weeks, and the result of it was so beneficial that when it was concluded all the units were able to enter the firing line, where they did distinguished work. The following are the

Details of the Course.

1. All the officers and men of every battalion, whether they were known to be infected with malaria or not, were subjected to the whole course.

2. The quinine was given daily on parade, if possible at 11 A.M. or at 2 P.M., under the supervision both of the regimental and of the medical officers; and great care was taken that no one should escape his dose.

3. Either the sulphate or the hydrochloride of quinine was allowed; but these salts were always given in solution by the mouth.

4. The whole course (lasting ten weeks) was divided into two stages. During the first stage, lasting 14 days, 15 gr. of either salt were given in solution every day. During the second stage (lasting eight weeks) 10 gr. of either salt were given in solution every day on six days in every week. Thus, every officer and man received 210 gr. during the first stage, and 480 gr. during the second stage of the course.

5. *Physical exercises*, in the form of various kinds of military training, parades, route marches, fatigue duties, football, and other games, and even sea-bathing, were

ordered or permitted during the whole course. But during the first stage no man was allowed to be employed on military duties (including "fatigues") for more than four hours daily, and these four hours were not taken consecutively. As the course advanced, especially after 28 days, the daily number of the hours of work was increased, until, near the end of the course, full work was done, and the men even spent a night in the open without blankets as a final test of their fitness.

6. All the malarious battalions were allowed the "forward area ration"—a very generous ration—during the whole course; and bottled stout and French beer were often provided or permitted. But much tea was discouraged.

7. Many of the men who had done 28 days of the course without relapses were allowed short leave to their homes, but were always given a supply of quinine tablets for 14 days with instructions to take 10 gr. daily without fail during their absence.

8. Every endeavour was made to amuse and to interest the men during the course; and they were always instructed as to the reason why it was enforced so strictly.

9. If, in spite of this antirelapse prophylaxis, some of the men did suffer from relapses they were admitted to field ambulances or detention hospitals, where they were at once examined by a medical officer and were treated accordingly. They were obliged to report the occurrence of the relapse immediately, at any hour of the day or night, and not merely to do so afterwards, as, for instance, next day. The relapse was treated as follows (unless there were medical reasons against the treatment). Ten gr. of quinine in solution (hydrochloride or sulphate) were given every four hours until 40 gr. had been administered in the 24 hours; and this was continued for five days. If the man at the end of the five days had then been free from fever for two days, he was discharged to his unit with orders to recommence the whole course from the beginning. Special comforts were, of course, provided for men with relapses.

10. Alkaline laxatives were administered twice or thrice a week to men on the ordinary course, and every morning to men suffering from relapses (unless contra-indicated).

11. The following table shows the results of the treatment on the 20 battalions referred to:—

Table giving the Number of Cases Diagnosed as Malaria among 20 Battalions during Ten Weeks' Treatment.

Battalions numbered serially.	Strength.	During week commencing first stage of treatment.	During week ending first stage of treatment.	During a week in second stage of treatment.	During week completing treatment.	Number of days under treatment.
I.	865	154	8	3	Nil.	67
II.	796	42	6	4	1	66
III.	765	209	78	57	2	66
IV.	756	21	20	6	Nil.	73
V.	701	175	82	62	,,	88
VI.	954	573	79	10	,,	70
VII.	626	80	11	1	,,	87
VIII.	621	10	10	4	,,	67
IX.	735	58	7	1	,,	89
X.	721	20	16	1	,,	66
XI.	—	80	60	1	,,	46
XII.	—	87	15	3	,,	72
XIII.	—	110	26	29	4	73
XIV.	—	175	95	67	3	60
XV.	—	146	102	19	5	90
XVI.	—	52	22	2	2	87
XVII.	—	140	13	69	Nil.	65
XVIII.	—	56	6	1	,,	76
XIX.	—	50	32	35	4	56
XX.	—	82	8	Nil.	11	74

Average duration of treatment 10 weeks.

It should, of course, be understood that the battalions were not subject to infection or reinfection in France, and that the cases among them were therefore relapses. Few of the men were invalided out of the battalions after arrival in France.

The details of the course were designed and superintended, under the Director-General, Medical Services, B.E.F., France, by Lieutenant-Colonel J. Dalrymple, C.M.G., O.B.E., R.A.M.C.

II.—IN ENGLAND.

During the last six months a number of soldiers previously infected with malaria have been undergoing special treatment in malaria concentration centres in the United Kingdom, with a view to rendering the men as fit as possible either for return to duty or for demobilisation, as the case might be. The treatment adopted has been very similar to that given in France, as described in the previous Article I. It consists in the daily oral administration of not less than 10 gr. either of the sulphate or of the hydrochloride of quinine, in solution, to every man, without fail, on parade, in presence of the medical and other officers. The parades are generally held at 11 A.M. or 2 P.M., and the administration of the quinine must be continued daily for at least 28 days. Exercise in the form of drills, parades, route marches, and sports is insisted upon during the whole course for those who are fit for it. In the event of relapses occurring in spite of the course they are treated as described in Article I., which should be consulted for further details.

The following table gives the results in two malaria concentration centres in which special daily figures have been kept on record. Of course, the total strength in each centre varied from day to day as new cases arrived and men who had finished the month's course went away; but the first column of the table gives the average strength in the centre. The second column gives the total number of relapses which occurred during the month concerned; and the third column gives the percentage of relapses to the average strength.

In Centre I. all the men have been given 15 gr. of quinine daily, and here the relapses until February have amounted only to about 1·6 per cent. of strength—that is, the relapses occurred only at the rate of 16 during the whole month among a force of 1000 men taking the quinine course. In Centre II. the dosage of quinine was only 10 gr. daily, and the relapse-rate was higher. (The figure for November, 1918, was rendered fallacious by influenza and other causes.) In Centre I. the relapse-rate was still higher during February, owing to many men being retained in the camp after completion of the course.

Malaria Concentration Centre I.

(Captain H. Fraser, R.A.M.C.)

Month.	Average daily parade strength.	Relapses during month.	Percentage of relapses to average strength.
November, 1918.	918	15	1·63 %
December, ,,	423		1·65 %
January, 1919.	566	9	1·59 %
February, ,,	550	25	4·5 %

Malaria Concentration Centre II.

(Captain F. H. Cooke, R.A.M.C.)

November, 1918.	493	69	13·99 %
December, ,,	376	10	2·65 %
January, 1919.	233	10	4·29 %
February, ,,	349	7	2·00 %

The medical officers of both centres report that the relapses occurred chiefly among newcomers, who had not been taking quinine regularly before arriving at the centres; and they agree that the relapses were easily treated by the usual methods described in Article I.

PRESENTATIONS TO MEDICAL MEN.—Dr. Nathan Raw, M.P., who recently resigned the position of medical superintendent of the Mill-road Infirmary, Liverpool, which he held for over 21 years, was presented by the staff of the infirmary on April 28th with a five-light candelabrum as a token of their regard and esteem.—Dr. George R. Pirie, of Calgary, Alberta, Canada, who throughout the period of the war has acted in the triple capacity of resident medical superintendent, medical registrar, and casualty medical officer to the Hospital for Sick Children, Great Ormond-street, was presented on leaving London on Saturday last by the committee of management and the medical committee respectively with a silver casket and a dressing case suitably inscribed. The committees, in handing the gifts to Dr. Pirie, testified in high terms to the service he had rendered to the hospital.

AN INVESTIGATION UPON THE

INFLUENCE OF MALARIA ON THE WASSERMANN REACTION.

BY J. GORDON THOMSON, M.B., CH.B. EDIN.,
CAPTAIN, R.A.M.C.(T.C.); PROTOZOOLOGIST TO THE LONDON SCHOOL OF TROPICAL MEDICINE;
AND
CLAUDE H. MILLS, M.R.C.S., L.R.C.P.,
HONORARY SURGEON TO ST. PAUL'S HOSPITAL FOR SKIN AND GENITO-URINARY DISEASES; SPECIALIST ATTACHED TO ROCHESTER ROW MILITARY HOSPITAL.

Introduction.

THE special committee upon the standardisation of pathological methods appointed by the Medical Research Committee recommended selected standard methods of performing the full original Wassermann test.

While working on a special malaria research for the War Office under the direction of Colonel Sir Ronald Ross, it was suggested by Brevet-Colonel L. W. Harrison that it would be of great value to test a series of malaria cases by one of the standard Wassermann methods used for the diagnosis of syphilis. The technique employed in this series of observations on malarial sera is that described by Harrison[19] in the special report on the Wassermann test, Series 14, published by the Medical Research Committee.

The following is an account of previous experimental work done by using the Wassermann test in malaria.

(*a*) *Authors Who Obtained Positive Wassermann Results in Malaria.*

1. Boehm (1909) states that only recent cases of malaria gave a positive Wassermann reaction, and that these became negative when the parasites were no longer present in the peripheral blood.

2. Schoo (1910) reported upon 38 cases of tertian malaria and 22 gave a positive reaction. Syphilis as far as possible was excluded.

3. Meier and Bonfiglio (1910) were of the opinion that as long as malaria parasites were present in the blood the Wassermann reaction was positive and advocated that no case in which syphilis was suspected should have the test performed until after three months free from malarial fever.

4. Professor Wassermann (1910), in an address before the British Medical Association, gave it as his opinion that the test ought not to be done in suspected cases until the patient had been free from malaria for three months.

5. Ferrari and Gioseffi (1911) obtained 16·6 per cent. of positive reactions in cases of malaria clinically not syphilis, and they confirmed Boehm's observations that the reaction disappeared after quinine treatment.

6. Zschucke (1913) applied the Müller Brendal modification of the test to 17 cases of malaria and only 3 gave negative results. At the same time Da Rocha-Lima applied the ordinary test to 7 of these cases and only obtained one positive result which, on standing, became negative.

7. J. de Haan (1913) conducted experiments on the sera of 163 cases of acute malaria and reported a positive result in 63 cases. Eleven of these cases, previously positive, became negative after quinine treatment. He diagnosed 27 of his cases as syphilis clinically, and states that it is not clear why all cases of acute malaria do not give a positive reaction.

8. Sutherland and Mitra (1915), in a series of experiments on 50 cases of malaria, obtained positive results during the acute attack of the disease, but not in chronic cases. They advise that the blood be clear of parasites for a week before doing the test for syphilis.

9. Thompson (1916) on several occasions found the test positive in malaria during the time of the fever, but these became negative when the temperature fell and the parasites disappeared from the peripheral blood.

10. Hirsch (1917) examined 78 cases all with malarial parasites in the peripheral blood, and 28 gave positive results. Five remained positive after three weeks' treatment with quinine.

11. De Jong and Martin (1917) concluded that if the blood was not drawn at or near the paroxysm of an attack of malaria the test was of diagnostic value in syphilis.

12. Meyerstein (1917) declared that the Wasserman reaction (particularly when using ethereal-heart-extract of Lesser) was often positive in tertian malaria during the first few days after an attack of fever. After the tenth day of fever he seldom obtained a positive result. He stated that the Wassermann reaction depended on, but did not completely coincide with, the presence of malarial parasites in the blood and that the reaction became negative simultaneously with the disappearance of the parasites under the influence of quinine.

13. Prins (1918) advocated that patients with malaria should have six weeks' quinine treatment before the Bordet-Wassermann test was done for the diagnosis of syphilis.

14. Craig (1918) reports in his recent book on "The Wassermann Test" that he obtained positive results in five cases of tertian malaria during the paroxysm; the blood becoming negative at the afebrile periods. This author, however, definitely states that the occurrence of a positive reaction in malaria, even during the paroxysm of the fever, is comparatively rare, for he has examined many cases with negative results, and other investigators report similar experiences.

(*b*) *Authors Who Found the Wassermann Reaction Negative in Cases of Malaria.*

15. Cziknawerow (1909) examined 13 cases of malaria, all of which gave negative results.

16. Manu Muscel and Vasiliu (1910) in 12 cases of malaria, some acute and others chronic, found all were negative.

17. Bates (1912) in Panama used Noguchi's modification of the Wassermann test in 164 cases of malaria, and obtained 37 positive results; of these 30 were certainly infected with syphilis.

18. Fletcher (1914), using the technique of Browning, Cruickshank, and McKenzie, examined 50 cases of malaria, all with parasites in the blood, and all gave negative results. He found that fresh unheated sera gave slight positive reactions and he thought the large number of positive results obtained by others was due to the various modifications of the test used by them.

20. Mathis and Heymann (1915), using the Wassermann method as employed at the Pasteur Institute of Lille, reported negative results in 21 cases of malaria.

21. Kimura (1917) found the reaction negative so constantly as to lead to the presumption that the test is of diagnostic value in syphilis.

Factors Responsible for the Conflicting Results.

It is evident that the term Wassermann test has been employed in a very loose sense. Many writers have not even taken the precaution of describing the method used. The contradictory results and consequent confusions which have arisen since 1909 have undoubtedly been caused by different laboratory workers using a variety of methods, some of which certainly must have been unreliable. In addition to this it must be recognised that in many cases latent syphilis is difficult to exclude, even when the aid of a specialist accustomed to the clinical aspects of this disease is solicited.

We can classify the findings of other observers into four groups:—

(*a*) Those who have found the Wassermann reaction positive when malaria parasites were present in the blood, and found that the reaction persisted in some cases after several weeks' treatment with quinine.

(*b*) Authors who found that the Wassermann was positive only when malaria parasites were present in the peripheral blood.

(*c*) Those who obtained positive results only during the paroxysm of the fever, and even then only in a few cases.

(*d*) Those who found the Wassermann universally negative in all cases of acute malaria.

With regard to groups (*a*) and (*b*), it is now certain that two factors were responsible for the results obtained—namely, an unreliable technique and undiagnosed syphilis. Bates (1912) and Fletcher (1914), using the technique of Noguchi and that of Browning, Cruickshank and McKenzie, obtained universally negative results in cases of malaria, and most of these were acute cases with parasites present in the blood. On the other hand, Craig (1918) obtained five positive results in tertian malaria during the paroxysm of the fever. He, however, states that a positive Wassermann reaction in malaria, even during the paroxysm of the fever, is comparatively rare. We consider that the coexistence of syphilis in any given series of patients is certainly not "rare."

In summing up the literature, therefore, it seems clear that the cases of malaria credited with giving a positive Wassermann reaction are extremely rare.

TABLE SHOWING THE AUTHORS' RESULTS OF THE WASSERMANN TEST ON THE SERA OF MALARIA CASES.

(These observations were made at the Rochester Row Military Hospital, and the test carried out was that used in the routine diagnosis of syphilis.)

(a) *Cases of Malaria giving Negative Wassermann.*

No. of cases.	Type of infection.	Period at which serum was examined.	Remarks.	Result of test.
2 cases	*P. vivax* numerous in the blood.	During rigor, cold stage. No quinine.	Numerous previous attacks.	–
1 case	,, ,, ,,	,, ,, ,, ,,	Numerous relapses and previous attack of subtertian malaria, (i.e., *P. falciparum*).	–
case	*P. vivax* present in the blood. 3200 parasites per c.mm.	Blood taken immediately after rigor had ceased. T. 105° F. No quinine.	Several previous relapses.	–
2 cases	*P. vivax* present in the blood. All stages of growth, 14,736 parasites per c.mm.	Rigor 1 hour previously. T. 103° F. No quinine.	Several relapses.	–
2 cases	*P. vivax* present in the blood. 10,304 parasites per c.mm. In one case chiefly young rings and ½ and ¼ grown parasites.	Rigor 2 hours before blood was drawn. T. 103° F.	7 attacks of malaria in France.	–
1 case	*P. vivax* present in the blood. Parasites 16,800 per c.mm.	Blood taken 12 hours after rigor. No quinine.	Many relapses previously.	–
3 cases	*P. vivax* present in the blood. Heavy infections and parasites at all stages of development.	Rigor night before. No quinine.	Numerous previous relapses.	–
2 cases	*P. vivax* numerous parasites.	Rigor 24 hours before.	Numerous relapses.	–
3 cases	,, ,, ,,	Rigor 2 days ago. No quinine. Taken before 2nd rigor.	,, ,,	–
1 case	,, ,, ,,	Rigor 3 days ago. No quinine.	,, ,,	–
1 case	*P. vivax* present in the blood.	Rigor 4 days ago. No quinine.	Many relapses.	–
10 cases	*P. vivax* present in the blood. All heavy infections.	Last rigor 3 to 7 days ago. No quinine.	Numerous previous relapses.	–
1 case	*P. vivax* present.	No rigor for 8 weeks. No quinine.	Several relapses.	–
5 cases	*P. vivax* present in the blood.	All cases had 10 gr. quinine 2 hours before serum was examined.	Numerous previous relapses.	–
3 cases	,, ,, ,,	All had received two doses of quinine, 10 gr. each dose.	Numerous relapses.	–
2 cases	,, ,, ,,	Quinine 8 gr. daily for two days.	Quinine 2 gr. 4 hours daily.	–
1 case	,, ,, ,,	Very chronic case.	Very numerous attacks. Spleen 3 in. below costal margin.	–
1 case	*P. vivax*. No parasites present at time blood was taken.	Chronic case of malaria.	Numerous attacks; long courses of treatment. Spleen 4 in. below costal margin.	–
1 case	*P. vivax*.	Five weeks' quinine treatment.	Numerous previous attacks. Spleen 1 in. below costal margin.	–
2 cases	*P. falciparum*. Sexuals only present (i.e., crescents).	No quinine recently.	Both had numerous attacks. One had spleen 3 in. below costal margin.	–
2 cases	*P. falciparum*. Asexual and sexual parasites present in large numbers.	,, ,,	Numerous attacks of malaria.	–
2 cases	*P. vivax* and *P. falciparum*. Mixed infection.	Long courses of treatment; no parasites in blood when examined.	,, ,, ,,	–
1 case	*P. falciparum*. Asexual parasites numerous in the blood. No sexuals.	No quinine. (A comatose case followed by death.)	Numerous attacks.	–
2 cases	*P. falciparum*. Both had asexuals and sexuals. Crescents in one case 4986 per c.mm. In other 748 per c.mm.	One case never treated with quinine. Both very anæmic. The other case has no quinine recently.	One case infected in Salonika, the other in E. Africa.	–
70 cases	*P. vivax*. Parasites not present in blood, except in case of three which had a few sexuals. Three cases *P. falciparum*; no parasites present in the blood.	Blood serum examined at all stages of quinine treatment from 4 days to 2 months of 30 gr. a day.	These were all cases with numerous relapses. First attack dating from 3 years to 6 months ago, and infected in France, Egypt, Palestine, German East Africa, Salonika, and Mesopotamia.	–

(b) *Cases of Malaria in which the Wassermann was Positive and were afterwards Diagnosed by Mr. Mills as Syphilitic.*

1 case	*P. vivax* present in the blood.	Blood taken when T. 104° immediately after rigor.	Examined by C. H. M. Old case of syphilis treated in India.	+
1 case	*P. vivax*. No parasites present.	15 days quinine, 30 gr. a day.	Examined by C. H. M. Patient confessed having syphilis.	+
1 case	*P. vivax* present in blood at time of examination.	15 gr. of quinine 4-hourly for 1 day.	Examined by C. H. M. and found to be a tertiary syphilitic.	++
2 cases	*P. vivax*.	Both treated with quinine. One for 2 days, 60 gr. a day. The other had had no treatment.	Examined by C. H. M. and both had evidence of congenital syphilis.	++
3 cases	*P. vivax*.	One case had long course of quinine. The second had 30 gr. for one day. The third had *P. vivax* (sexuals) and 9 days quinine 30 gr. a day.	All examined by C. H. M. Two cases were tertiary syphilitics. No. 3 had definite congenital syphilitic stigmata.	++

Notes of Cases with Positive Wassermann Reaction.

CASE 1. *Wassermann positive.*—Treated for secondary syphilis in India in 1913, receiving three injections of "606" and approximately nine months' mercurial treatment by the mouth and 12 intramuscular injections of grey oil. Patient has noticed no clinical relapses. Superficial scar of meatal chancre; no cutaneous lesions; right anterior pillar of fauces scarred, also posterior pharyngeal wall; no active mucous membrane lesions. Reflexes normal. *Syphilis* (treated)—Wassermann recurrence.

CASE 2. *Wassermann strong positive.*—Penile sore in 1912. Treated for three months with mercurial pills at St. Thomas's Hospital. No treatment since. (*a*) One definitely infiltrated scar in dorsum coronal sulcus; (*b*) circular scar left side corona glandis; no loss of tissue. Well-marked leucodermia and melanodermia of neck, anterior folds axillæ and over iliac crests. Diffuse alopecia posterior third of scalp. Each posterior pillar of fauces converted into "pearly" band of scar tissue, the left being bound down to posterior pharyngeal wall. Reflexes normal. *Tertiary syphilis.*

CASE 3. *Wassermann strong positive.*—Preputial chancre removed by circumcision 1901. Marked superficial glossitis with accompanying leucoplakia; leucoplakia mucous membrane both cheeks; faint leucodermia and melanodermia of neck. *Tertiary syphilis.*

CASE 4. *Wassermann strong positive.*—No evidence, clinically, of acquired syphilis; family history unreliable. Bossing of frontals, middle third of face atrophic. Faint rhagades at angles of mouth.

High arched palate. Incisors removed; last upper molars exhibit marked doming of cusps (Moon's malformation). Considerable exaggeration of normal fissures of tongue. Antero-internal surface of tibiæ protuberant. Chronic painless synovitis both knee-joints. Reflexes normal. *Patient considered to be a congenital syphilitic.*

CASE 5. *Wassermann positive.*—No evidence clinically or acquired syphilis; family history unobtainable (orphan). Bossing of frontals; saddle-shaped nose; mid third of face atrophic. High arched and asymmetrical palate. Well-marked Moon's molars (upper). Supernumerary cusps to upper incisors; tongue deeply fissured. Old osteitis and periostitis both tibiæ. Reflexes normal. *Patient considered to be a congenital syphilitic.*

CASE 6. *Wassermann strong positive.*—No evidence clinically of acquired syphilis. Youngest of family of 10. Two eldest died in infancy; third had "convulsions" in infancy; fifth "hard of hearing"; eighth had "inflammation of his eyes" at age of 14. Patient has well-marked bossing of frontals; rhagades angles of mouth. Nose depressed and flattened laterally. Upper incisors widely spaced and slightly pegged. Very typical Moon's molars (upper). Central nebula right cornea from old interstitial keratitis (at age of 16). Genu valgum. Reflexes normal. *Congenital syphilitic.*

CASE 7. *Wassermann strong positive.*—Penile chancre 1890, with considerable non-suppurative painless inguinal adenitis. Patient remembers no rash or sore throat. Was treated with mercurial pills for one month only; lotio nigra to chancre. Scar of chancre present in dorsum of coronal sulcus with no loss of tissue. Has had several attacks of herpes preputialis; no cutaneous lesions. Scarring from previous ulceration each anterior pillar of fauces. Circinate superficial scarring right side soft palate. Extensive leucoplakia mucous membrane right cheek; one ulcerated fissure right lateral margin of tongue. Reflexes normal. *Tertiary syphilis.*

CASE 8. *Wassermann strong positive.*—Scar of old chancre in right frenal angle and scar of sinus right inguinal region from suppurating adenitis of approximately 12 years ago. Multiple pigmented scars outer surface middle third left leg. All very supple with regular circinate outlines. Considerable loss of tissue. Bossing from old periostitis antero-internal surface lower third right tibia. Fixed scarring over left sterno-clavicular articulation from previous "breaking-down" peri-articular gummata. Interstitial and superficial glossitis. Reflexes normal. Patient looks considerably older than his actual age. *Tertiary syphilis.*

Reliability of the Wassermann Reaction in Malaria.

In our series of 130 cases of definitely diagnosed malaria, examined at every possible stage of the infection, it will be noted that only eight were positive, and in these we were able definitely to diagnose syphilitic infection in each case.

The patients came from different parts of the world, and thus infections with many different strains of parasites were tested. In the above series we have cases from France, Egypt, Palestine, Mesopotamia, India, German East Africa, Salonika, and West Coast of Africa. Some of these had suffered from as many as 30 attacks of fever or more during a period of three years.

The blood was examined by us at every stage of the disease, from the paroxysm onwards. Blood containing asexual parasites (*P. vivax*) in numbers of 14,000 per c.mm. or more, gave a negative Wassermann. Similarly a case of *P. falciparum* infected with over 4000 sexuals (crescents) per c.mm. of peripheral blood was also negative, and cases of chronically enlarged spleens due to malaria, which had been treated or untreated with quinine, also gave a negative reaction. In fact, in no case could it be said that malaria *per se* gave rise to a positive reaction.

In this series of experiments on the sera of malaria cases, we thus definitely can state that by using the Wassermann method as conducted at the Rochester Row Military Hospital for the diagnosis of syphilis, we need not be influenced by a previous history of malarial fever, nor even by the presence of malarial parasites in the blood. It is true that Craig found that a few cases of malaria gave a positive reaction during the paroxysm of a fever, but it is unlikely that blood in such a case would be drawn at that time for a complement-deviation test, and this may therefore be excluded. Moreover, we were unable to corroborate this.

19. Harrison (1918) points out that serum in itself, even fresh unheated serum, is sometimes anti-complementary, and Browning and McKenzie state that sera which have stood for some days develop increased anti-complementary powers, although they may have been heated previously. In these experiments it was found that if the malaria serum was not heated it tended to give a positive reaction, and it was also noted that serum, if kept for two days even after being heated on some occasions, gave positive results, probably due to contamination. An important point definitely established in this series of observations is that the presence of quinine in detectable quantities in the serum in no way affects the Wassermann reaction in syphilitic cases. This was proved by examination of serum by Staff-Sergeant Nierenstein, D.Sc., Ph.D.

Exclusion of Possibility of Syphilis being Present.

In perusing the literature upon this subject we are forcibly struck by the very unsatisfactory and generally totally inadequate investigations pursued in order to exclude the possibility of the patient being a syphilitic, acquired or congenital, since upon this fact the entire value of the research depends. The absolute exclusion of syphilis in a patient is by no means such a simple clinical proposition as one might be led to infer from the cursory allusions to it by some of the writers mentioned above.

Very frequently in a venereal clinic we are confronted with a positive Wassermann test, taken as a routine, in a patient exhibiting a lesion which is clinically and microscopically non-specific, for instance, say a scabetic papule on the penis. A more thorough systematic examination at the first attendance would have revealed that the patient was a tertiary syphilitic.

Syphilitic Involvement of Parenchyma of Central Nervous System.

Cases occur in which there is extensive syphilitic involvement of the parenchyma of the central nervous system, yet which exhibit practically no clinical signs or symptoms—e.g., the incipient G.P.I. We know that an active gummatous process about the general tissues has never yet been observed in such a case, nor the scarring of such a process. The history frequently given in these cases is that the primary sore was never noticed, having usually been trivial, and sometimes masked by an accompanying gonorrhœa. The secondary rash, if observed, is often of a transient erythematous roseolar variety, lasting but a few days, and leaving no scarring. It is a hard-and-fast fact that when the parenchyma (as opposed to the supporting structures, i.e., meninges and vessels) of the central nervous system takes the brunt of the syphilitic invasion the general tissues of the body escape. To repeat, the scar of a gumma has never yet been observed about the general tissues in a case of G.P.I., and just prior to its onset no clinician deprived of laboratory methods could detect that the patient was syphilitic.

On the other hand, where the general tissues exhibit extensive recurrent gummatous foci—e.g., nodular cutaneous syphilide, interstitial glossitis or orchitis, &c.—the parenchyma of the central nervous system most frequently escapes and a normal cerebro-spinal fluid is often obtained. Although digressing somewhat, the point we wish to emphasise is this—that in the majority of cases of early syphilitic involvement of the parenchyma of the central nervous system a very careful and thorough clinical examination is always absolutely necessary and an examination of the cerebro-spinal fluid imperative, in order to detect that the patient is a syphilitic. Such a case may for intervals even give a negative Wassermann in the blood serum.

Supposing that such a case contracts malaria, we consider it probable that his syphilitic infection might not be detected, and that his blood Wassermann would therefore be considered as due to the malaria. Were his blood Wassermann found to be negative at the onset and to become positive as his general resistance became lowered subsequently—then the case would go down as proof that malaria *per se* gives a positive Wassermann reaction in a patient.

Non-recognition of Congenital Syphilis.

Congenital syphilis is very liable to pass undetected as such, and therefore swell the number of fallacies when a large number of malarial patients are submitted to the Wassermann test. There seems to be a tendency amongst medical men who are not specially concerned in syphilology to connect the clinical picture of congenital syphilis only with those gross lesions classically depicted in "the good old text-books of surgery"—i.e., bossing of the frontals, saddle nose, rhagades, Hutchinson's teeth, interstitial keratitis, scabbard-shaped tibiæ, deafness, convulsions, epilepsy, juvenile tabes, &c.

We wish to emphasise here that a patient may be a definite congenital syphilitic even when exhibiting none of these stigmata, and that were he to be submitted to the most thorough examination his syphilis would not be detected without the aid of the Wassermann test. We have seen cases during the war of interstitial keratitis supervening on a local lowering of resistance, such as air concussion, actual blow, conjunctivitis from foreign body and from gas, occurring between the ages of 22 to 29,

in which we were unable to detect any other clinical evidence suspicious of congenital syphilis beyond, perhaps, the doming of the cusps of a solitary molar tooth. The physique and mentality were excellent. The Wassermann was persistently a strong positive. In some cases the unaffected eye became subsequently involved and went through the phases of a typical attack.

One might describe here the case of a surgeon, aged 29, who, whilst operating upon a non-syphilitic patient, received a splash of pus into one eye which was immediately washed out with some too strong perchloride of mercury lotion (1 : 1000). The resulting chemical conjunctivitis resolved, but was subsequently followed by an attack of interstitial keratitis in that eye. He was then examined for evidence of congenital syphilis—a possibility entirely unsuspected hitherto. His Wassermann reaction was strongly positive with other corroborative evidence.

Now if any of these cases had contracted malaria prior to the interstitial keratitis we are positive that syphilis would not have been suspected, and malaria would have been held responsible for the production of a strongly positive Wassermann reaction. It is well to point out that of the eight cases in our series giving a positive Wassermann reaction three were found on examination to be congenital syphilitics, a fact hitherto unnoticed in their military career.

Undetected Cases of Acquired Infection.

Numbers of acquired cases occur where the patient is entirely ignorant of his having been infected with syphilis; these come under the observation of the medical man if the severity of the secondary manifestations become such as to necessitate the patient seeking advice. It frequently happens that the patient only presents himself for examination after certain proprietary "blood mixtures" have failed to disperse the lesions. (There are many in whom the secondary lesions are trivial, and these resolve spontaneously undetected.) The type of case, by no means as rare as the literature might lead one to suppose, is that in which inoculation occurred on the tonsil, tongue, or fossa navicularis of the urethra. As an illustration it was found at Rochester Row Military Hospital, over one period of 18 months, that the incidence of a chancre in the fossa navicularis was 1 in 14 of the total admissions for primary and secondary syphilis; and the primary sore was by no means infrequent on the lip, tonsil, tongue, and finger in the order given in a period of four years.

The number of cases that have attained the age of, say, 40 and onwards before syphilis is diagnosed for the first time upon the development of an active gummatous process convinces one that many must pass entirely undetected. A large number might pass unsuspected should they develop, say malaria, at an earlier date while presenting no gross lesions. It is only reasonable to suppose that the number of syphilitics, especially females, who carry their infection to the grave undetected, must be considerable.

We are convinced that the further this investigation proceeds, in the hands of careful clinical observers, upon the behaviour of the Wassermann reaction in the various diseases other than syphilis and yaws, the more light will be thrown upon the number of undetected syphilitics, and it will not be assumed so lightly as hitherto that these other diseases are responsible for the reaction.

A positive Wassermann reaction in malaria demands that syphilis be excluded by a most careful and searching inquiry.

Authors' Conclusions.

1. The Wassermann reaction conducted according to a recognised standard method does not give a positive reaction in malaria at any stage of the disease.

2. If a positive Wassermann reaction is obtained in a case of malaria it is either due to undiagnosed syphilis or to faulty technique.

We wish to tender our grateful thanks to all the staff at Rochester Row Military Hospital for their kindness. Colonel Harrison, D.S.O., officer in command, Rochester Row; Captain D. Thomson, pathologist; and Mr. Nöel Clarke gave us every facility and help, and it is wholly due to them that these observations were made possible. Captain T. Gardner, R.A.M.C., and Dr. Jamieson on the malaria research staff gave invaluable assistance.

Literature.—1. Boehm (1909): Arch. f. Schiffs- u. Trop.-Hyg., 1909, xiii., Beiheft 6. 2. Schoo (1910): Nederl. Tydschr. voor Geneesk, 1910, No. 5. 3. Meier and Bonfiglio (1910): Results not published.

(*Continued at foot of next column.*)

WASSERMANN TESTS:

THE OCCURRENCE OF VARIATIONS IN THE RESULTS OF SUCCESSIVE TESTS; THE CLINICAL APPLICATION OF THE DATA.*

BY C. H. BROWNING, M.D. GLASG., D.P.H. OXON.,
AND
E. L. KENNAWAY, M.D. OXON., D.SC. LOND.
(From the Bland-Sutton Institute of Pathology, Middlesex Hospital.)

THE clinical value of the positive Wassermann reaction as a "specific" indication of syphilis is now generally accepted. This statement, of course, applies to the performance of the test under adequately controlled conditions.[1] The subject, however, assumes another aspect when an attempt is made to draw conclusions for the control of treatment, &c., from quantitative differences in the reaction.

Quantitative Differences in the Reaction.

Owing, probably, to the fact that few observers test the reaction with a sufficient series of varying quantities of complement, it has not been widely recognised how variable the results are when the same specimen of serum is examined repeatedly. An indication of this fact is afforded by scattered observations on "paradoxical" reactions—i.e., the obtaining of a positive result on one occasion and a negative on another with certain sera. But the importance of such variations has not been recognised as affecting the value of the results of those who grade the positiveness of the reaction, e.g., by a series of plus signs, &c. Also it has not been sufficiently realised that conclusions regarding the state of a patient can scarcely be drawn from the result of repeated tests unless a definite positive reaction is replaced by a definite and repeatedly obtained negative. On the contrary, a number of observers (see Boas [2]) base conclusions on minor quantitative differences in consecutive examinations. Thus there is the danger of imbuing the reaction with an illusory attribute of precision in the quantitative sense.

A consideration of the fact that, other constituents apart, different guinea-pigs' sera are used as a source of complement, as well as different specimens of red corpuscles in the hæmolytic system on successive occasions, should entail a cautious attitude; but we shall indicate later that the sources of discrepancy are probably even more extensive. In the report furnished to the Medical Research Committee [3] the conclusions which we had reached in this matter were stated as follows:—

"It has been found as the result of many years' routine tests with longer series of tubes than those above noted (i.e., more than three amounts of complement for each specimen of serum) that no single amount of complement, measured either by volume or by hæmolytic doses, will serve as a criterion for positive, owing to slight or no lysis occurring with it or for negative, owing to complete lysis occurring with it. This is due to the following facts:—(*a*) The absence of any fixed relationship between hæmolytic power and deviability on the part of different specimens of complement; (*b*) the difference between the amount of complement necessary to cause complete lysis and the amount which causes only a trace of lysis, varies greatly with different complements when the same antigen and the

* A report to the Medical Research Committee.

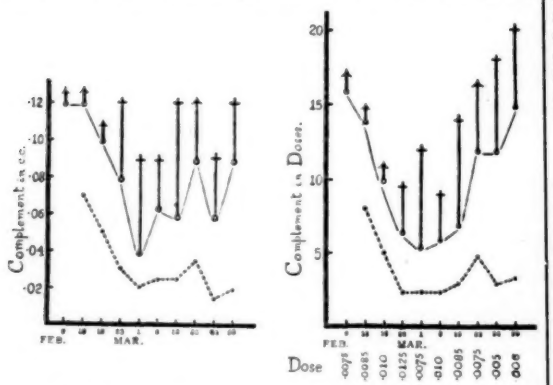
(*Continued from previous column.*)

4. Wassermann (1910): Annual Meeting of the British Medical Association, 1910, THE LANCET, 1910, ii., 475. 5. Ferrari and Gioseffi (1911): Biochimica e. Terap. Sperim., 1911. 6. Zschucke (1913): Berlin. klin. Wochenschr., 1913, l. (No. 37), 1716-1719. 7. De Haan, J. (1913): Arch. f. Schiffs- u. Trop.-Hyg., xvii. 8. Sutherland and Mitra (1914): Indian Jour. of Med. Research, No. 2, 1914. 9. Thompson (1916): Syphilis, Diagnosis and Treatment of Syphilis, Philiadelphia, 27, 1916. 10. Hirsch (1917): Ztschr. f. Hyg. u. Infektionskr., 1917, lxxxiv. (No. 2), 323-324. 11. De Jong and Martin (1917): Presse Méd., 1917, xxv. (No. 60), 617-618. 12. Meyerstein (1917): Münch. med. Woch., 1917, lxiv., (No. 2), 366-368. 13. Prins (1918): Zur Klinik der Malaria, Deut. med. Woch., 1918, xliv. (No. 5), 132-133. 14. Craig (1918): The Wassermann Test, 1918, London, 149. 15. Cziknawerow (1909): Russky Vratsch, 1909, 876. 16. Manu Muscel and Vasiliu (1910): C. R. Soc. Biol., 1910, lxviii., (No. 4). 17. Bates (1912): Archives of Internal Med., 1912, x, 470. 18. Fletcher (1914): THE LANCET, 1914, i., 1677. 19. Harrison (1918): Special Report on Wassermann Test, Series 14, published by Medical Research Committee. 20. Mathis and Heymann (1915): Bull. Soc. Path. East., May, 1915, viii. (No. 5), 256-259. 21. Kimura (1917): Jl. Formosa Med. Soc. 1917, No. 175, 324-325.

same patient's serum are employed. Hence, it is impossible to judge accurately from the degree of lysis, with one fixed amount of complement, what degree of lysis would be obtained with a given smaller or larger amount. The same holds good when different positive sera are tested along with the same antigen and the same complement."

Illustrative Series of Tests.

The following series of tests illustrates the points clearly. The figure represents the amounts of complement necessary to produce different degrees of lysis (from a trace to complete) on different occasions when the same positive serum was tested along with syphilitic antigen and complement. The results of a parallel series of tests with the same negative serum are also given; but in this case, owing to the small amount of complement fixation, only the point of complete lysis is shown. In the left-hand figure the complement is expressed as c.cm. of guinea-pig's serum; the right-hand figure shows the same series of experiments, but the complement is reckoned in hæmolytic doses.



o = first trace of lysis, + = complete lysis, ↑ = incomplete lysis with the highest amount of complement used, with the positive serum. •---• = complete lysis with the negative serum.

Amounts of Complement giving just Complete Lysis in the Antigen Control.—Feb. 9th, 2– doses; 16th, 7– doses; 18th, 2– doses; 23rd, 2– doses; March 1st, 2– doses; 8th, 2– doses; 16th, 2– doses; 22nd, 4– doses; 24th, 3– doses; 29th, 2·5– doses.

The tests were made by the method already described (Browning and McKenzie [4]). The antigen employed was an alcoholic solution of ox-liver "lecithin" with addition of 1 per cent. cholesterol, 1 volume of which was slowly mixed with 7 volumes of normal saline. A series of tubes was taken, each containing 0·3 c.cm. of the emulsion of antigen and 0·025 c.cm. of patient's serum previously heated for half an hour at 56° C.; increasing amounts of complement (the pooled serum of two or more guinea-pigs, bled about 18 hours previously) were added. On each date a different specimen of ox blood was used to furnish the hæmolytic system; the red corpuscles were sensitised with at least five doses of immune body from the rabbit.

The positive serum consisted of a mixture of sera of two cases; small amounts were placed in a series of tubes which were preserved frozen at −15 to −22° C. throughout; a specimen was withdrawn from the refrigerator and thawed before use. The negative serum was derived from one person and was that habitually used; it was treated in the same manner as the positive specimen; but two batches of the negative serum were employed, the first being used for five tests, and the second for the last four. The controls with serum and saline only, but no antigen, gave in all cases complete lysis with two doses of complement.

Value of Use of Negative Control Serum.

The results vary irregularly from week to week, hence there is evidence that a *progressive* alteration in the frozen sera is *not* responsible for the variations. The results given in the figure illustrate the fact that it is not possible to fix upon any single amount of complement the behaviour of which, along with "antigen" and patient's serum, will determine whether that serum is positive or negative. In the original technique of Wassermann 0·05 c.cm. of complement was employed, under specified conditions, in all cases; sera showing no lysis with this standard amount were regarded as positive, and those showing complete lysis as negative. But the results with the positive serum represented in the figure above show that on one day (March 1st) 0·04 c.cm. complement sufficed to produce commencing lysis, whereas on other occasions (Feb. 9th and 16th) no less than three times this amount was required.

It is clear, then, that the diagnosis must be based, not upon the behaviour of the unknown serum with any fixed amount of complement, but upon *comparison with the behaviour of a known negative serum*. In spite of the great fluctuations in lytic power for the test corpuscles which were exhibited also by the mixture of the negative serum along with antigen and complement, as shown in the figure, there is an obvious parallelism between the series of positive and negative results. This fact strongly suggests the use of a negative control serum as a standard in diagnosis. The value of such a procedure lies in its being independent of the variations of complement, except, of course, in so far as deficient deviability of the complement in a given test will cause failure to detect weak positives. The employment of a criterion of this nature will be considered in greater detail in a forthcoming paper.

Variability of Results.

With regard to the variability of results in the Wassermann test the figures show that (1) the same positive serum may require from 0·04 to 0·12 c.cm. complement, or from 5 to 16 doses to produce commencing lysis; (2) the same negative serum may require from 0·017 to 0·07 c.cm. complement, or from 2·5 to 7 doses, to produce complete lysis; (3) further, when the amount of complement which produces commencing lysis is ascertained, one cannot formulate any rule which will determine the further amount necessary to produce just complete lysis. This is shown by the varying length of the vertical lines in the figure. Thus the same serum may give the observer very different impressions of positiveness according to the particular sample of complement employed. Hence results recorded by varying numbers of plus signs, while purporting to give valuable information as to the state of the patient, are to a large extent merely expressions of the variability of the reagents employed in the test. Observations on the use of heart-cholesterol antigen indicate that the variations above noted are not pecular to a liver-antigen.

The complement is an important source of variation, since, as was pointed out by Browning and McKenzie,[4] there is no constant relationship between its hæmolytic power and its capacity for being bound by the mixture of "antigen" and antibody. Attempts to preserve a constant stock of complement by freezing the pooled serum of a number of guinea-pigs have not, however, solved the difficulty and irregularity in the degree of complement fixation remains a marked feature in spite of this precaution. It would appear, therefore, that minute physical differences in the emulsion of the "antigen," as well as variations in the test red corpuscles, may be responsible.

It is not asserted that variations which have been attributed to alteration in the reacting power of the same patient's serum when examined at short intervals are entirely explicable on the above basis—e.g., those quoted by Craig.[5] But we would point out that this, so far, apparently uncontrollable irregularity which is met with in the biological syphilis test, has not been sufficiently taken into account by many workers.

Summary.

1. When the same specimen of syphilitic serum is repeatedly examined for complement fixation in the Wassermann test the actual amounts of complement fixed vary greatly on the different occasions. These variations are quite irregular, and depend on factors which cannot, so far, be rendered constant.

2. This result prevents the attaching of clinical significance to minor variations in positiveness obtained on repeated tests of the same patient's serum—e.g., under treatment.

3. The evidence shows that the criterion of positiveness or negativeness of a serum should not be determined by the absolute amount of complement fixed, but by the amount of fixation relative to that produced by a known negative serum.

References.—1. See Medical Research Committee's Reports, Nos. 14 and 21. 2. Boas: Die Wassermannsche Reaktion, Berlin, 1914. 3. Medical Research Committee, Special Report Series, No. 14. 4. Browning and McKenzie: Recent Advances in the Diagnosis and Treatment of Syphilis, London, 1912. 5. Craig: The Wassermann Test, London, 1913.

THE COMPLEMENT-FIXATION TEST IN GONOCOCCAL INFECTIONS,

AND THE PREPARATION OF A GONOCOCCUS ANTIGEN.

BY ARTHUR H. PRIESTLEY, M.B., CH.B. VICT.,
LATE CAPTAIN, R.A.M.C. (T.C.).

I HAVE found a slight modification of the Rochester Row technique for the Wassermann test to answer well in testing sera for the presence of gonococcus antibody. In adding the complement and antigen dilutions, instead of using a separating funnel with stop-cock for the larger dropper (0·76 cm.), as described in the Medical Research Committee's Report on the Standardisation of the Wassermann Test, I use 5 in. of glass tubing of the correct outside diameter, fitted with a teat, and held vertically by hand as with the No. 56 S.W.G. pipette for serum. A very little practice enables one to hold this vertically; and I find it easier thus to drop at a regular rate and with much less strain than is caused by working to the rate of a mechanical contrivance.

I do not find it necessary to titrate the complement in the presence of antigen each day, as in a method recently published. I have found gonococcus antigens prepared by several different methods to develop no anticomplementary properties over a period of several months, though their antigenic qualities diminished slowly. I therefore take as 1 M.H.D. the ordinary lytic amount for one unit of 5 per cent. corpuscle suspension as determined by the preliminary complement titration each day. Four tubes are employed, one being the serum control; the three for the test proper containing 3, 4, and 5 M.H.D. of complement, that for the serum control 3 M.H.D. The preliminary incubation is carried out overnight (18 to 24 hours) in the ice-chest. This appears to be essential. I have tried various ways of shortening this period, and of incubating at room temperature and at 37° C., but they have proved unsatisfactory. This may be due to faulty antigen, and further experiments are needed in this direction, as prolonged fixation has certain drawbacks.

The order of going in is as follows, the drop being from the 0·76 cm. dropper except in the case of serum, where the No. 56 S.W.G. pipette is used:—

1. Two drops of saline into fourth tube; one drop of saline into first, second, and third tubes.
2. One drop of serum into all four tubes.
3. One drop of complement dilution = 3 M.H.D. into first and fourth tubes; one drop of complement dilution = 4 M.H.D. into second tube; one drop of complement dilution = 5 M.H.D. into third tube.
4. One drop of antigen of the proper dilution into first, second, and third tubes.
5. Period of cold incubation.
6. One drop of 5 per cent. corpuscle suspension into every tube.
7. Incubation in water-bath at 37° C. for half hour.

The results are then read at once.

In addition to the tests, positive and negative serum controls are put up; also an antigen control with 3 M.H.D. complement and a complement control alone.

I tried at first using 2, 3, and 4 M.H.D. complement in the tests, and 2 M.H.D in the serum control; but I found that a number of sera, in cases where there was no reason to suspect even latent gonorrhœa, gave a positive in the first tube, and a number of controls also failed to lyse completely.

It is difficult to confirm one's results in a disease like gonorrhœa, where so many cases are latent for years, and where a patient's history is often unreliable. But in testing a considerable number of sera sent for the Wassermann test, where gonorrhœa was not suspected, either a present attack or a past history has been found in over two-thirds of the cases where 4 M.H.D. were fixed, and in the large majority of cases where 5 M.H.D. were fixed.

The antigen which I have found most satisfactory is prepared as follows:—

A number of slopes of 0·5 per cent. Na_2HPO_4 agar, made + 5·5 (Eyre's scale) to phenolphthalein, with the addition of 10 per cent. hydrocele fluid, are inoculated with several strains (9–12) of gonococcus. After 24 to 48 hours' incubation the growths are washed off with a little sterile distilled water. The suspension is evaporated to dryness over a water-bath, using as little heat as possible, weighed, and ground up in an agate mortar with powdered glass. It is then extracted with ether, dried again, and stored in the ice-chest. To prepare the stock antigen an amount equal to 100 mg. of the original dried suspension is weighed and suspended in 10 c.cm. saline. This is extracted at 37° C. for 24 hours and filtered. To ascertain its anticomplementary and antigenic qualities the filtrate is titrated by itself and with positive and negative sera in dilutions of 1 in 5, 1 in 7·5, 1 in 10, 1 in 15, and 1 in 20.

It is probable this method can be improved upon as, for example, by drying in vacuo without heat. I have not the necessary apparatus at hand for this. By some similar method, however, a dry product may be prepared and stored, which can be put up with saline in small quantities, and so maintain a constant standard of antigenic power.

SOME FORMS OF IRRITABLE HEART.

BY I. HARRIS, M.D.

(From the Cardio-Therapeutic Department, David Lewis Northern Hospital, Liverpool.)

IT is generally recognised that the group of cardiac symptoms which go by the name of irritable heart have not a common ætiology. This is not the whole truth. This appellation embraces a number of affections which are ætiologically, clinically, and pathologically distinct from each other and have in common nothing but the name. Almost every form of heart affection not obviously valvular, but whose exact nature is not easily recognisable, is labelled "irritable heart." I need only mention the difference between functional disorder of the heart due to neurosis and the form of "irritable heart," which go together with enlargement of the thyroid gland, of which we have heard a great deal lately, and again the various forms of irritable heart due to myocardial trouble which are distinct in every respect from the two types just given.

I will not attempt an exhaustive treatment, but will only deal with two forms of irritable heart, which, so far as I know, have not been considered in contemporary literature.

Pericardial Adhesions.

One of the most common forms of irritable heart in my experience is due to pericardial and pleuro-pericardial adhesions, and tubercular or idiopathic pericarditis. Let me not be misunderstood. I do not mean pericardial adhesions which exhibit the classical signs of retraction, Broadbent's sign, &c. My theses are: (1) that it is possible to diagnose pericardial adhesions where the classical signs are absent; (2) that pericardial and pleuro-pericardial adhesions affect the heart muscle in such a way as to give rise to the signs and symptoms of irritable heart.

We all know how often pericardial adhesions are found post mortem, but have never been diagnosed during life. By far the majority of cases of pericardial adhesions now under review result from extension of inflammation of the organs surrounding the heart. I have had the opportunity in children, and also in adults, to follow up the different stages step by step. Beginning as plastic pleurisy, one may observe the inflammation spreading to the pericardium, and even to the myo- and endocardium. During the last epidemic of influenza I have seen cases of extension of inflammation from pleura to pericardium. The pleuritic friction rub and other signs of lung trouble soon disappear, and if one does not observe the actual extension of the inflammation to the pericardium, the subsequent development of the cardiac trouble both in regard to its nature and ætiology may appear rather obscure.

Some valvular cases owe their origin through invasion of infection from pericardium. To simplify matters, we will leave out of account myocardial and endocardial complication which may result from extension of inflammation, limiting our observations to pericardial and pleuro-pericardial adhesions and general thickening of the pericardium.

It is easy to understand how adhesions and even a thickened pericardium will make it difficult for the heart to function properly. As the heart, hemmed in by a thickened or adherent pericardium, is hampered whenever increased muscular exertion necessitates more energetic contractions, even physiological hypertrophy cannot take place. The heart muscle will remain permanently in a condition of flabbiness like any other muscle not fully active. Such a heart might

well stand an ordinary amount of work, but an inefficient heart muscle can never bear the strain of extraordinary exertion. It is this type of heart which suddenly gives way under great strain.

As far as physical signs are concerned, it follows that no hypertrophy of the heart muscle ensues. This leads often to a misunderstanding of the real condition of the heart. From the fact that there are no indications of hypertrophy, it is usually concluded that the other physical signs are of no account, and that we have to deal with a functional heart pure and simple.

In my experience the following features are characteristic of the affection. There is a history of chronic lung trouble or pneumonia; a characteristic so-called "murmur" is heard near the left sternum, at about the third or fourth intercostal space or more often at the cardio-hepatic angle. This so-called "murmur" is audible at end of systole or beginning of diastole. The murmur does not stand in close relation to the heart sounds as in endocardial murmur; a double thud is in the majority of cases not audible. A great deal depends on the position of the patient during examination, the recumbent position being absolutely necessary in these cases. Often enough a "rub" is heard in the areas just indicated which could not possibly be mistaken for a murmur.

The heart sounds in the area just indicated (i.e., near the sternum) are very characteristic; they give the impression of being peculiarly accentuated. The heart sounds in the usual areas of ausculation are often normal but are sometimes altered. Sometimes, however, friction sounds can be heard in the mitral area. In more serious cases, where the myocardium is also affected, a high-pitched murmur resembling a rhonchus is audible in the mitral area.

It must be remembered that the area affected may vary considerably and give rise to a great variety of symptoms. Some cases are very slightly affected indeed, hardly exhibiting any sign of cardiac weakness. In other cases the cardiac conditions are such that the patient is unable to stand the slightest extra exertion. At any rate, it is a serious condition of the heart and ought not to be disregarded. The symptoms of irritable heart in these cases are due to an undeveloped and flabby heart muscle.

Infection with Colon Bacillus.

Another form of irritable heart is due to *B. coli* affecting probably the myocardium. The following three cases are typical:—

CASE 1.—Girl aged 13. Her present disease started three years ago with passing a great deal of urine. There is a distinct tenderness in the appendix region, and there is considerable difficulty in breathing on exertion. No murmur present. Slight accentuation of the second pulmonary and the first mitral. On examination with the microscope the urinary deposit showed a *B. coli*-like organism. I sent a specimen to the Thompson-Yates Laboratory, and the following is the report: Sugar absent, albumin absent, reaction acid. Deposit: Coliform bacilli and occasional pus corpuscles. Culture: Free growth of *B. coli*. No tubercle bacilli found.

CASE 2.—Youth, aged 18, slight in stature, very neurotic. He has difficulty in breathing on exertion and complains of palpitation. A systolic murmur is audible in the recumbent position. Second pulmonary is somewhat accentuated. Percussion does not show any enlarged area of dullness. Has frequently had pain in the back and fainting fits. *B. coli* in the urine repeatedly found.

CASE 3.—A girl, aged 12; has been on and off unwell for the last five years. Difficulty in breathing on exertion, slight rise of temperature, suffered repeatedly from slight attacks of fever which lasted a few weeks at a time. Systolic murmur in mitral area, second pulmonary accentuated; *B. coli* present in urine, no albumin. *B. coli* disappears under treatment when temperature becomes normal.

I think one is justified in assuming that in the above cases the heart condition is probably due to *B. coli* infection. One must also remember that the colon bacillus might infect the heart muscle without the bacilli being demonstrable in the urine. In fact, a *B. coli* infection is often acute, lasting a short time only, which, however, may be sufficient to damage the heart muscle permanently. As colon bacillus infections are fairly common in the trenches they may possibly account for certain forms of "soldier's heart."

I am obliged to the medical board, Northern Hospital, for permission to publish material in connexion with this paper.

THE PERSISTENCE OF
CEREBRO-SPINAL FEVER CASES AS CARRIERS
OF THE MENINGOCOCCUS DURING CONVALESCENCE.

BY DENNIS EMBLETON, M.A., M.B. CANTAB.,
MAJOR, R.A.M.C.; CEREBRO-SPINAL FEVER OFFICER, NETLEY, SOUTHAMPTON, NEW FOREST, AND WINCHESTER AREA; BACTERIOLOGIST, ROYAL VICTORIA HOSPITAL, NETLEY;
AND
GEORGE H. STEVEN, M.B., CH.B. EDIN.,
BACTERIOLOGIST, ROYAL VICTORIA HOSPITAL, NETLEY.

(*Report to the Medical Research Committee.*)

THE period that a convalescent c.-s.f. case persists as a carrier of the meningococcus is of extreme importance to the civil as well as the military population. In the Carrier Centre at Netley there has been a good opportunity of studying this question, as in addition to the acute cases admitted from the district a great many convalescent cases from overseas passed through the Centre.

The duration of "carrying" has been accurately recorded. Every convalescent case was examined at approximately weekly intervals during the past two years, and was not discharged as free from infection till three consecutive post-nasal swabs taken at weekly intervals (after treatment had been stopped) were proved to contain no meningococci. Some of the earlier convalescents from overseas, admitted as free from infection, were discharged when a single swabbing confirmed this finding. Weekly investigation of convalescent cases recovering from an acute attack, and unfit for discharge, showed, however, that there was a considerable intermission in the presence of meningococci in the post-nasal swabs. As an example of this, a case, R. E., had a severe attack, with onset on March 28th, 1917. He was swabbed on April 7th with negative result. On April 17th a Type I. coccus was isolated and proved by agglutination and saturation tests from his naso-pharynx. (This was the same type of coccus as had been isolated from his c.-s. fluid.) On May 2nd his swab was negative, and on May 19th again positive, Type I. During the next two months he was swabbed five times, all negative, and became positive again on July 18th. During the next few weeks he continued positive, eventually becoming negative on Oct. 17th, and remained so till he was finally discharged hospital in March 1918.

As soon as this intermission was realised all convalescents, even if marked free from infection on the strength of three consecutive negative swabs taken overseas, were always kept in the centre till three consecutive post-nasal swabs were obtained here. Nearly every case so examined was found positive, as will be seen subsequently.

Treatment.

The following methods of treatment have been tried:—Inhalation chamber: Chloramine-T, zinc sulphate. Hand spray: Chloramine-T (oil spray), flavine and adrenalin, lecithin and paraffin, electrosal. Direct application: Tinct. ferri perchlor., iron alum, acid. carbolic. Ointment: Ung. hydrarg. nit. dil.

Each method can claim a certain number of "cures," inasmuch as it was the last used before the case eventually ceased to "carry." On the other hand, each method has been used on many cases for prolonged periods without eliminating the meningococcus. One noticeable effect of all the above methods has been to diminish appreciably the total number of colonies per plate and also the variety of organisms appearing, so that at the end of a week's treatment in the majority of cases a nearly pure culture of meningococcus appeared, contaminated with only a few colonies of staphylococcus, streptococcus, *M. catarrhalis*, or diphtheroids, &c. Thus it would appear that, although the superficial organisms were destroyed, the more deeply seated—i.e., those in the crypts, were untouched. As the length of time that the Netley cases were proved to remain carriers is longer than that reported from other centres, it might be thought that insufficient attention had been paid to methods of treatment. This is not the case, as all chronic carriers were given systematic treatment in one or more ways. Each method of treatment is detailed below.

Inhalation chamber.—The chamber used for this purpose was a bathroom 10 ft. × 5 ft. and 8 ft. high; it had one window and a door, which were kept closed throughout the time during which the patients were exposed to the vapour. Ventilation was secured through a second hopper window which was kept open 1 inch. A Levick spray was placed on a board on the bath and started, three men being admitted at a time. Before admission these men were instructed in breathing through their noses and out through their mouths. The nostrils were cleared by blowing. The time for exposure was 5 to 10 minutes twice daily. It was found, however, that many men could not stand ten minutes; the commonest time used was seven minutes. The spray was charged with chloramine-T 1 per cent. or zinc sulphate. Both methods have been used on some of the carriers for periods of over two months without sterilising them, and with apparently no beneficial result. The swabs were taken at least 24 hours after the last admission to the spray room as a routine, but the meningococcus has been recovered in nearly pure culture and proved by agglutination tests within half an hour after a patient had been exposed to ten minutes in the chamber charged with chloramine-T.

Hand spray.—The sprays used were Oris and De Vilbiss. The preparations used were as follows:—1. Acriflavine, 1 per 1000. 2. Chloramine-T. 3. Electrosal. 4. Lecithin, 0·1, 0·5, 1·0 per cent. in liquid paraffin. Before spraying was commenced with any preparation the nose was cleared as far as possible by blowing, &c., each nostril was tested separately, and if not clear the nostril was sprayed with adrenalin. Though in a very few cases it was impossible even to clear the nostril with adrenalin (one nostril remaining stopped), in by far the majority of cases both nostrils could be rendered patent. The particular drug was then sprayed up each nostril separately, the patient inhaling at the time and holding the other nostril closed. Each nostril was thoroughly sprayed until the fluid began to trickle down the throat. The first swabs were taken at least 24 hours after the last inhalation. In the case of flavine, however, it was found possible to obtain a nearly pure culture of meningococcus within 24 hours of a spray, the organisms growing quite readily, even when the swab was tinged bright yellow with the flavine. Flavine has been used for periods up to six months at a stretch on some of the cases mentioned below. No preparation mentioned has been used for less than six weeks on cases.

Direct application.—The infected part of the throat was painted over once or twice daily with a solution of tr. ferri perchlor. on a cotton-wool swab or with a bent brush. The strength of the tr. ferri perchlor. was increased gradually from 1 in 10 dilution to pure. Iron alum powdered crystals were also applied dry. A 24-hour interval was allowed to elapse after treatment before a swab was taken.

Ointment.—This was used extensively at first, daily or twice daily, and appeared to give as "? good" results as any other method of treatment since employed. The ointment used was:—

Ung. hydrarg. nit. dil.	℥ss.
Menthol	gr. v.
Ol. olivæ ad	℥i.

A jar containing this ointment was placed on a table and the patients were lined up, each bearing a match covered with cotton-wool. The match was dipped in the ointment, passed up each nostril and twisted round, and then thrown into a bucket. It was found then that four to seven days must elapse before the meningococcus could be grown from the posterior nares after this treatment. This was possibly due to the mercury remaining in situ. A few cases in addition to the above were treated by filling the accessory sinuses with the ointment.

It appears doubtful if any method of local treatment materially interfered with the meningococci when once these had definitely infected the deeper tissues.

The Naso-pharyngeal Examination.

The method of obtaining the meningococcus from the posterior nares is extremely important, an inexperienced person using the same culture-medium would obtain anything up to 50 per cent. less carriers from the same batch of men as an experienced one. As in chronic carriers the organism is deep-seated, appreciable pressure must be put upon the tissues examined to obtain a culture. We have found that sufficient pressure can be exerted with a brass wire of gauge 18. This wire was covered for one inch with a thin pledget of cotton-wool, and this end was bent nearly at a right angle. A thinner wire was at one time supplied, and it was immediately noticed that those carriers examined with the thinner wire gave a lower rate of positive examinations than those examined with the stouter wire. Also for some special work cultures were taken with a platinum wire, such as is used for ordinary bacteriological subcultures; it was found that repeatedly the meningococcus was missed with the platinum wire, though the organism was readily obtained in almost pure culture immediately afterwards with the brass wire swab, the platinum wire being too flexible to allow considerable pressure to be exerted. Of 388 swabs on the same set of cases taken at the same time, 239 were made with brass wire swabs, and 149 with platinum loop. Of the 239, 163 were positive (68 per cent.), while of the 149, 71 (48 per cent.) were positive.

The "West" swab was used at first considerably and has been used from time to time lately, but has not been found so suitable for this type of examination as the brass wire. It is more difficult to lay on to the particular position required—i.e., Lushka's tonsil—pressure cannot be exerted on the tissues and it also causes more discomfort. The pressure with the brass wire should be sufficient to produce a certain amount of hæmorrhage, thus although the swab when removed rarely shows signs of blood, a second swab if taken immediately afterwards would be always blood-stained. This pressure caused little discomfort, the plain wire swab being always preferred by the patient.

The infected swab was touched on to a Petri dish containing the special medium, and immediately spread with a glass spreader. The medium used was trypsinised ox-heart legumin hæmoglobin agar, made in accordance with the formula of the Central C.-S.F. Laboratory (fresh and not frozen hearts being always used), it was warmed before use and kept as warm as possible until returned to the incubator.

After 18 to 24 hours' incubation two colonies were picked off and subcultured for a further 24 hours. As a rule, the growth was free, and the subcultures, if proved to be Gram-negative cocci, were both immediately put up for agglutination against the standard agglutinating sera supplied by the Central C.-S.F. Laboratory. No colony was regarded as positive which did not give a definite agglutination with one or more types of serum and at the same time failed to agglutinate with normal serum. When time permitted colonies agglutinating with one or more types of serum were subjected to the saturation test.

Results.

Relationship between the meningococcus found in the cerebro-spinal fluid and in the naso-pharynx.—During the period covered by this paper meningococci were recovered from both the cerebro-spinal fluid and the naso-pharynx in 36 cases. In 35 of these cases, or 97 per cent., the type of meningococcus was proved to be the same in the naso-pharynx as was found in the cerebro-spinal fluid. In one case a Type I. coccus was found in the naso-pharynx, and a Type III. in the c.-s. fluid, both cocci were proved to type by saturation. The naso-pharyngeal coccus was recovered some days before any growth could be obtained from the cord. The growth from the c.-s. fluid was obtained for the first time 12 days after the case came under observation, when a severe relapse set in. Three days later the patient died before the c.-s. fluid coccus was agglutinated and the anomaly discovered; it was then impossible to reswab the naso-pharynx. This might have been a case of reinfection by a Type III. coccus as there was at the time a Type III. case in the ward.

Constancy of type of coccus in convalescence.—Cases during convalescence carried only one type of coccus throughout with one exception. This man (A.H.) was admitted as a convalescent from France. He was examined repeatedly during three months and found to be a Type II. carrier. At the end of this time it was noticed that his coccus was agglutinating also by Type I. serum, and from this time onwards he persisted as a Type I. carrier until he eventually became clear five months later. As this is the only time that we have noticed that a convalescent case changed his type of coccus it seems sufficiently important to record in detail. Tables I. and II. show the examinations carried out.

TABLE I.—*Agglutination Results, A.H.*

Date of swabbing.	I.		II.		III.		IV.		Normal.	Type.
	1/50	1/100	1/50	1/100	1/50	1/100	1/50	1/100	1/50	
April 7th ...	–	–	–	–	–	–	–	–	–	Negative.[1]
,, 23rd ...	–	–	†	–	–	–	–	–	–	II.[2]
May 12th ...	–	–	†	–	–	–	–	–	–	II.
,, 19th ...	–	–	††	††	–	–	–	–	–	II.
,, 21st ...	–	–	††	††	–	–	–	–	–	II.
,, 25th ...	–	–	††	††	–	–	–	–	–	II.
,, 28th ...	–	–	††	††	–	–	–	–	–	II.
,, 30th ...	–	–	††	††	–	–	–	–	–	II.
June 8th ...	–	–	–	–	–	–	–	–	–	Negative.[1]
,, 14th ...	–	–	–	–	–	–	–	–	–	Negative.[2]
,, 16th ...	–	–	–	–	–	–	–	–	–	Negative.[2]
,, 21st ...	–	–	††	††	–	–	–	–	–	II.
,, 27th ...	–	–	††	†	–	–	–	–	–	II.
,, 28th ...	–	–	††	†	–	–	–	–	–	II.
,, 30th ...	–	–	–	–	–	–	–	–	–	Negative.[3]
July 2nd ...	–	–	–	–	–	–	–	–	–	Negative.[2]
,, 10th ...	††	††	††	††	–	–	–	–	–	I. or II.[3]
,, 18th ...	††	††	††	†	†	–	†	–	†	?[4]
August 6th ...	††	††	†	–	–	–	–	–	–	I.
,, 18th ...	††	††	–	–	–	–	–	–	–	I.
,, 29th ...	††	†	††	†	–	–	–	–	–	I. or II.
Sept. 5th ...	††	††	††	†	†	†	†	†	†	?[4]
,, 18th ...	††	††	††	††	–	–	–	–	–	I. or II.[4]
,, 25th ...	††	††	–	–	–	–	–	–	–	I.

[1] Did not agglutinate. [2] No colonies suspicious. [3] Two colonies gave same result. [4] Saturation results see below.

TABLE II.—*Saturation Tests, A.H.*

(A) Sera after saturation with Hodgson coccus (B) Unsaturated sera

Date.	I.				II.				III.				IV.			
	1/50	1/100	1/200	1/400	1/50	1/100	1/200	1/400	1/50	1/100	1/200	1/400	1/50	1/100	1/200	1/400
July 18.																
(A)	†	–	–	–	††	††	†	–	††	†	–	–	††	†	–	–
(B)	††	††	††	††	††	††	†	†	††	†	–	–	††	†	–	–
Sept. 5.																
(A)	†	–	–	–	††	††	††	–	††	††	††	††	††	††	†	–
(B)	††	††	††	††	††	††	†	†	††	††	††	††	††	††	†	–
,, 18.																
(A)	†	–	–	–	††	††	††	††	††	††	††	††	††	††	††	††
(B)	††	††	††	††	††	††	††	–	††	††	††	††	††	††	††	††

Result.—Agglutinin removed only from Type I. serum. Hodgson coccus = Type I.

Convalescent C.-S.F. cases as carriers of the meningococcus.—Table III. shows that of the 135 convalescent cases of c.-s.f.

TABLE III.

A. Convalescents found to be carriers and treated throughout their carrying period at Netley...	87
B. Convalescents found to be carriers and still infectious at the present date	7
C. Convalescents found to be carriers, but removed from Netley while still infectious	10
D. Convalescents never found to be carriers	31
E. Total convalescents examined during period covered by this paper	135

examined during this period 104 were found to be carriers, or 77 per cent., and 31 negative, or 23 per cent. Of the 31 convalescent c.-s.f. cases who were never proved to be carriers, 26 were admitted in the first three months of the period under discussion; they were only swabbed once or twice, and as they were admitted from overseas, marked "free from infection," were discharged before the third examination was made. At this time it was not realised that chronic carriers are apt to be extremely intermittent.

—	Number.	Proved carriers.	Never proved.
Cases from overseas ...	97	66	31
Cases from Netley ...	38	38	0

The average duration of time between the onset of the disease and the date on which the 31 were swabbed at Netley was also long (145 days), and in 1 case 355 days had elapsed. Of the remaining 5 cases who were never proved to be carriers, only 2 were examined three times.

The 31 cases never proved to be carriers were all convalescents from overseas. The cases which were treated at Netley for the acute attack and afterwards observed during convalescence were all proved to be carriers.

Ninety-seven convalescent cases were admitted from overseas during the period, the bulk of those were marked "free from infection" on admission. Herewith are the results of the examinations made on the 66 of these overseas cases proved to be carriers at Netley. No case is recorded as positive unless the coccus recovered from the naso-pharynx agglutinated with one of the standard sera supplied by the Central C.-S.F. Laboratory. The number of cases proved positive for the first time on first examination was 30; on second examination, 20; on third examination, 9; on fourth examination, 5; and on fifth examination, 2.

It is thus extremely likely that if the 31 cases who were never proved to be carriers had been properly examined a large number would have been proved to be carriers. The above figures prove the importance of repeatedly examining convalescent c.-s.f. cases before discharging them as free from infection.

Duration of carrying of convalescent C.-S.F. cases.—In Table III. above the convalescent c.-s.f. cases found to be carriers are grouped under three headings, A, B, and C. For the purpose of investigating the length of time that convalescents remain carriers of the meningococcus, Group A can only be considered, as the time when the cases under Groups B and C become free from infection was not able to be ascertained. In Group A 87 convalescents have been investigated from either the onset of the disease or whilst the case was still in the very early stages of convalescence until the meningococcus disappeared from the posterior nares. A convalescent was considered to cease carrying from the date of his first of the three consecutive negative post-nasal swabs before discharge.

TABLE IV.—*Period of Carrying from Onset.*

Less than 7 weeks	3 cases.	7 months to 8 months ...	7 cases.
7 weeks to 2 months (60 days)	9 ,,	8 ,, to 9 ,, ...	2 ,,
		9 ,, to 10 ,, ...	4 ,,
2 months to 3 months (90 days)	11 ,,	10 ,, to 11 ,, ...	3 ,,
		11 ,, to 12 ,,	2 ,,
3 months to 4 months ...	8 ,,	(365 days)	
4 ,, to 5 ,, ...	8 ,,	12 months to 15 months ...	3 ,,
5 ,, to 6 ,, ...	14 ,,	15 ,, to 18 ,, ...	4 ,,
6 ,, to 7 ,, ...	7 ,,	Over 18 months	1 case.

One of the 87 cases is not included in this list. This man was not admitted to this hospital until 462 days after his onset. He was admitted with symptoms suggestive of internal hydrocephalus, which had persisted throughout his convalescence. On admission he was found to be a carrrier and he carried here for 285 days. It is possible that he had been a carrier from his onset, as all the other cases seen here who showed similar symptoms persisted in carrying whilst these symptoms appeared. If his carrying period could be counted from his onset his total carrying time would have been 747 days, more than two years.

The average duration as carriers of the 86 cases was 173 days, or just under 6 months (from the onset). 49 cases carried less than this time, 37 exceeded it. The longest time that a case was proved to carry was 608 days.

The types of cocci carried by the 86 cases were determined, and the average carrying period for each type is shown in Table V.

TABLE V.

Type.	No. of cases.	Average period.	Longest period.	Shortest period.
I.	43	196 days.	463 days.	43 days.
II.	35	195 ,,	608 ,,	38 ,,
III.	6	155 ,,	214 ,,	34 ,,
IV.	3	146 ,,	348 ,,	46 ,,

Conclusions.

1. The meningococcus in the c.-s. fluid and naso-pharynx of a case are of the same type.

2. A convalescent case carries only one type of meningococcus at a time, and is relatively insusceptible to other types of meningococcus.

3. A case of cerebro-spinal fever remains a carrier of the meningococcus on the average for 6 months after the onset of the disease and frequently for longer.

SUBACUTE TRENCH FEVER.

BY J. H. LLOYD, M.D. LOND.,
MAJOR, R.A.M.C. (T.F.).

A GREAT deal has been written about trench fever, but nearly all upon the acute stage. Its existence in a subacute form has not received the attention it deserves. The first cases of this type encountered I did not recognise, and attributed the symptoms to some other condition, or thought the man was malingering.

Terminology.—I feel sure that the illness is not sufficiently well known, and was glad to see Colonel R. D. Rudolf's note in THE LANCET.[1] I do not agree with his proposal to call these cases "trench fever cachexia," as undue prominence is given to one only of many concomitants, and that one not always present. For the last 18 months I have been labelling these cases "subacute trench fever," and with every deference I submit this as a better name for them.

Temperature.

Temperature charts (Nos. 1, 2, 3, and 5) shown by Colonel Rudolf illustrate what might be called an out-and-out pyrexial phase, which a 12-hourly record would elucidate. There is, however, a group of cases which have fever of a much more cryptic order. Into this group might come some of the cases of which Colonel Rudolf says: "The rise of temperature is not present in every case, because it is a common thing to see a man with the same appearance and the same aching shins as the others who has no fever." I have found men who made complaints which led me to think they were feverish, but whose temperatures were normal or below.

This brought up the question of what was a normal temperature curve, and I tried to control the temperature records of my sick men by those of men supposed to be normal. Whether it was the ubiquity of trench fever infection or difficulty with the thermometer, I failed. The control men gave anything but normal temperature curves. Some curves were positively spiky, and the men admitted that at the time corresponding to their "spikes" they had headaches or some other complaint. In the search for normal controls it was apparently of no use choosing as such from among ward orderlies or minor surgical patients a healthy-looking man who said he had never been ill in his life. I believe that often these men have attacks of trench fever of so mild a variety that they do not consider themselves ill, but they are thereafter useless as normal temperature controls.

Having failed to establish a normal curve, I had to fall back on the commonly accepted view—i.e., that 98·4° F. is about the mean of the daily average, and that the daily variation is not more than 1·5° to 2°.

If men showing the symptom-complex under consideration have their temperatures charted every four hours or oftener, in most cases will be found what might well be called a "low-geared pyrexia." The temperature curve may be for days together wholly below 98·4°, yet the diurnal variation most days will be more than 2°, and sometimes 3° or even 4°. Sometimes the curve, quite sporadically and suddenly, will shoot up to 102° or 103° and fall again to 96° or so, all in a few hours. These evanescent bursts of fever are characteristic of this type of infection.

Considered as a whole, the temperature is quite unstable, and the curve, although keeping usually below the 98°–99° mark, has an unsteady appearance, as if something had thoroughly upset the regulating mechanisms. It will be found that the man's sufferings correspond closely with his temperature.

Symptomatology.

Spleen.—It is essential to examine the spleen by percussion as well as palpation. If splenic percussion be practised sufficiently, it will become as little trouble and just as reliable as percussion of the cardiac dullness. Its importance and value in the present connexion is very great, as probably more cases show a non-palpable splenic enlargement than a palpable one. When enlarged the organ is more or less constant in size, and does not vary, as I have seen it do in certain cases of the acute fever.

Hyperæsthetic areas.—The areas of hyperæsthesia noted by Major D. W. Carmalt Jones[2] in cases of trench fever I have had no opportunity of examining, but they promise great help if they are present as often in the subacute as in the acute illness.

Rash.—I have not seen the maculæ that occur in the acute fever.

Symptom Groups.

The importan e of recognising this type of case, and the difficulty of doing so, can be judged from the variety of diagnoses under which they are sent to hospital. These diagnoses, generally based on the man's own complaint, tell approximately how the man is suffering. From a consideration of the predominance of certain symptoms, it is convenient to divide cases into two main groups.

1. *The painful group.*—In this group are the men sent to hospital as "rheumatism," "myalgia," "neuritis," &c. They all complain of aches and pains in different parts of the body. Sometimes the pains are true to type, as "pains in my shins, which always get worse when I am warm in my bed at night." To illustrate this kind of case, let me refer to that of a man sent into hospital in January, 1918, as "chronic rheumatism":—

He had suffered ever since March, 1917, and had been evacuated to the base with what was evidently acute trench fever, of which for the first few months subsequently he had had several bouts, each with its own relapses. When admitted he had what he called "rheumatism" in the knees and shins, which was always worse (1) at night, (2) during wet or cold weather, (3) after unusual exertion. He suffered from palpitation, and very easily got out of breath. His tibiæ were slightly tender to pressure, the spleen was enlarged to percussion but not palpable, the heart apex beat was just inside the nipple line, and his response to exertion such as is sometimes described as D.A.H. His temperature chart was what I have discussed as the "low-geared pyrexia" type, and his pains were always worse when his temperature was highest.

In this case there was a definite acute original attack, but I wish to insist on the large number of men—especially the more aged soldiers—in this painful group who give no such history, but who are suffering from subacute trench fever.

2. *The debility group.*—This group has at one end the men whose chief disability is the "effort syndrome," and who are sent into hospital as D.A.H., V.D.H., &c. At the other end we find men complaining of being "done up," "nerves all gone," "depression," and being sent into hospital as "N.Y.D.N.," "neurasthenia," "debility," &c. Between these two extremes are all kinds of gradations.

It has been stated that D.A.H. is a sequela of trench fever, but I venture to predict that this symptom-complex will be found as an expression of the fever itself in its subacute form. Equally remarkable is the number of cases sent to N.Y.D.N. centres, who are victims of this subacute form of the fever, and in whom I conclude the symptoms have been produced more by the fever than by shell-fire—the latter merely precipitating and modifying them.

Whilst I was working for a short time at the N.Y.D.N. centre of one of the armies, I started to hunt systematically for cases of this kind amongst the N.Y.D.N. patients admitted. My detailed records have been lost, but I had at any one time an average of about 50 cases (of trench fever, either acute or subacute), out of a total of about 400 N.Y.D.N. cases in hospital. It is perfectly easy to see how these men come to be labelled N.Y.D.N. Many of them come in with a note to say "fainted" or "collapsed under heavy shell-fire." If their previous histories are gone into carefully, it is generally clear that many of them had been for some time previously infected with trench fever.

The fever in such men as these, smouldering for perhaps weeks or months, is likely at any time to flare up into a flame. If this happens suddenly, as often as not the man collapses, whether he be in the fire trench or on parade in a rest area. There is no doubt, I think, that the rigour of life in the line is a factor in bringing about the exacerbation. Another thing to remember is that the pyrexia of 102° or 103° that knocks such a man down may not last more than a very few hours, and that when he is seen by the medical officer his temperature has fallen again to normal or below.

To illustrate further this evanescent pyrexia, I can recall the case of a man sent into hospital with the following note

[1] THE LANCET, 1918, ii., 809.

[2] THE LANCET, 1918, ii., 443.

from his medical officer: "Fits, ? cause. Fainted on parade this morning. No physical sign." This man turned out to be suffering from the subacute form of trench fever that had followed his original acute attack of months before.

What exactly determines the groups of symptoms complained of I know not, unless it be where falls the stress of the poisoning, the susceptibility of his various tissues, and the man's own psychology.

There are some suspicions that the virus of trench fever is not entirely blameless with regard to the occurrence of some of the cases of war nephritis. If these suspicions are ever confirmed, we shall have yet a third group of symptoms—the nephritis—and I expect it will be in the comparatively difficult-to-recognise subacute form of the fever that the mischief in most cases will have beeen done.

CHART 1.

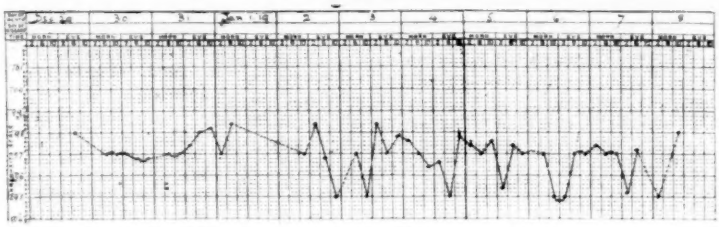
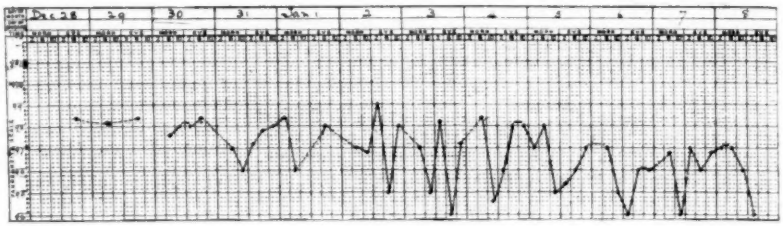


CHART 2.



Conclusion.

When we know more about trench fever in its acute and subacute forms it might be interesting to draw comparisons between it, syphilis, and malaria in their active and their latent stages; and had I had the opportunity of doing so, I should very much like to have compared temperature charts of men in the subacute phase of syphilis and malaria with those in the corresponding phase of trench fever. Perhaps this may some day be accomplished, but it is more profitable at the moment to advertise widely this unobtrusive phase of trench fever, and to keep it ever in mind when dealing with sick soldiers.

As Colonel Rudolf points out, there are great possibilities of regarding as a malingerer a man suffering in this way, and thus making him a danger to his comrades and laying up we know not what trouble for himself. The recognition of the condition will also be of primary importance to members of boards examining and reporting on the physical condition of men about to be discharged from the Army. Some day, perhaps, a complement-fixation test will be elaborated, and then we may be able to recognise this illness more often and make less mistakes.

I feel I must apologise for the absence of detailed records and the incompleteness of these remarks. My excuse is my difficulty of obtaining access to published works, and the mobile nature of last year's campaign defeated my attempt to retain the records I had collected.

Postscript.

Since writing the above I have again been able to collect records of some of these cases. Here are two temperature charts:—

Sgt. S.—Age 51. Admitted as "debility." Ill 12 months in all. Worse for the last seven days. Complains of pain in head, shoulders, back, shins, and toes. In the Army 4 years. B.E.F. 1½ years. Had "rheumatism" in 1917. Pains are worse "when standing about," and "generally at night." Heart apex beat in nipple line. No other physical signs. (Chart 1.)

Pte. M.—Age 39. Admitted as "D.A.H., chronic rheumatism." Ill this time three weeks. Complains of pain in head, back, and limbs. Dizziness, "weakness." In the Army 3½ years. B.E.F. ? months, then to England with "rheumatism." In England 16 months, then to France 3 months. No tropical history. Spleen palpable. (Chart 2.)

THE LACRYMAL GLAND IN SURGICAL ANÆSTHESIA.

BY THE LATE L. T. RUTHERFORD, M.B., B.C. CANTAB.

A PROLONGED search among modern text-books devoted to surgical anæsthesia has failed to discover any reference to the subject under discussion. Cases are occasionally met with where the anæsthetist has difficulty in securing a quiet anæsthesia, and where, in maintaining a constantly flaccid abdomen or other desirable condition, the resources of his craft are taxed to the utmost. It is here especially that the activity of the lacrymal glands is of value. Since the appearance of the lacrymal secretion at the inner canthi is obvious and requires no movement of the administrator to observe it, such a sign, if reliable, will decrease his work.

Account of the Sign.

The symptoms and signs observed during the inhalation of chloroform suffice to illustrate the stages of anæsthesia seen when chloroform, ether, or a combination of these drugs, is administered. Four stages are usually described: (1) a preliminary stage; (2) an excitement stage; (3) a stage of surgical anæsthesia; and (4) a stage of overdose.

In the first stage the activity of the lacrymal glands varies according to the strength of the irritation in the nose and tubes, and if no vapour impinges on the corneæ the canthi may remain dry. With the onset of the excitement stage, however, the lacrymal glands become excessively active, and pools of secretion appear at the inner canthi and overflow on to the face. During the stage of surgical anæsthesia the lacrymal glands cease to secrete, and the canthi, if dried after the excitement stage, remain so. The cessation of the lacrymal secretion usually takes place a few breaths before the complete abolition of the corneal reflex, although the disappearance of the reflex and the secretion may occur simultaneously. It is in the fourth stage that the differences between the action of chloroform and ether are so well marked and important, but these do not concern us at present. In the stage of overdose the lacrymal glands are inactive, the canthi are dry.

The four stages seen in some cases of chloroform narcosis may be found described in every text-book, but no mention is made of the lacrymal glands. The slight variability in the time of cessation of the lacrymal secretion is of no practical importance, for in no case do the glands continue to secrete *after* the abolition of the normal corneal reflex. (The term "normal corneal reflex" is used here to distinguish it from the "diminished corneal reflex," observed after a time in an eye continuously or carelessly tested.)

The moment at which the lacrymal secretion is first observed, after its cessation under the influence of chloroform or ether, provides a reliable indication of the exact moment at which to continue the administration, if a satisfactory surgical anæsthesia is to be prolonged. The time of the cessation of the lacrymal secretion during the induction period corresponds almost exactly with the time of its

reappearance during the recovery period. It is on this account that the "canthal" tear is so valuable, for it indicates that the corneal reflex is (or should be) present, and that the amount of anæsthetic is as small as is compatible with a successful anæsthesia. If, then, we administer our anæsthetic in quantities just calculated to abolish the lacrymal secretion, and then wait, if at any time in doubt, until the secretion again appears, we may feel confident that we are well on the safe side of the border-line between deep surgical anæsthesia and an overdose.

In the administration of anæsthetics there is no golden rule, and the utmost care must be taken to follow the general principles. In all the cases in which the behaviour of the lacrymal glands was observed, the greatest care was exercised in securing an unobstructed airway, an unembarrassed respiratory movement, and a position of the patient compatible with an adequate supply of blood to the higher centres.

The exhibition of such drugs as morphia, hyoscine, and atropine in a large number of cases completely abolishes the lacrymal secretion; also there are individuals, usually children between the ages of 5 and 15, in whom the lacrymal glands appear unaffected by the narcotics, and who, while under the influence of chloroform, show no evidence of lacrymal gland activity. In these rare cases the absence of the secretion is evident during induction, and this sign is therefore subsequently neglected.

Impending Vomiting and Overdose.

The importance of the presence or absence of the lacrymal secretion in differentiating the dilated pupil of overdose from that of impending vomiting is apparent. Those who affirm that it is possible to elicit a corneal reflex when the dilated pupil of "impending" vomiting is present, will consider no further differentiation necessary. Those who agree with me that only in the dilated pupil of "immediate" vomiting is it possible to obtain such a reflex, will admit the value of a further test.

The condition of the pupils in impending vomiting and in overdose is very similar; both may be inactive to light, neither retains a corneal reflex as a rule, and the accompanying signs and symptoms may give but little assistance. In such cases the value of the canthal pools is evident. If the canthi have been kept dry up to the moment at which the pupils commence to dilate, and if they remain dry after the pupils are dilated, then the anæsthetic must be withheld and preparations made for treating a condition of relative or absolute overdose. But if the canthi are flooded with tears, then the anæsthetist should at once increase the anæsthetic in order to inhibit the vomiting reflex and to secure an adequate anæsthesia.

If the canthi have not been dried after the stage of surgical anæsthesia has been established, and, if the anæsthetist has to rely on the appearance of the corneal reflex, &c., to dispel his doubts, then vomiting will often result, for the corneal reflex appears to be inhibited in some way during the initial period of impending vomiting and reappears (if it does reappear) in the shorter period of immediate vomiting, when it is too late to prevent the onset of vomiting by increasing the anæsthetic.

The Value of the Sign.

Those who are experienced in the administration of anæsthetics, and who subconsciously observe every little detail during an administration, will affirm that at no stage should the administrator be in doubt as to the depth of narcosis; nevertheless, an easily remembered and reliable indication of the depth of narcosis is valuable.

In the course of the investigations undertaken to establish the reliability of the lacrymal activity as a means of regulating the amount of the narcotic employed over 200 cases were anæsthetised for operations varying in severity from the opening of a superficial abscess to the resection of several inches of intestine, but owing to lack of space details have been omitted. Naturally many slight variations were observed in different cases, but they were of no practical importance, and may be divided into variations (1) in the quantity of the secretion and (2) in the time at which the secretion appeared and disappeared relative to the presence or absence of the corneal reflex. The latter has already been discussed, and I will now report on the former variation.

When chloroform is administered alone the quantity of the lacrymal secretion is usually small, but in uncomplicated cases it is at once evident. During the administration of ether the lacrymal secretion is abundant, and in giving mixtures containing ether the secretion does not fall much below that when ether is given alone.

In conclusion, I would insist: (1) That the appearance of a lacrymal secretion during anæsthesia is a constant phenomenon; (2) that it bears a definite relation to the depth of narcosis; and (3) that, since the exceptions to the general rule are easily recognised, the value of this sign must be at once apparent.

RECTAL ETHER ANÆSTHESIA.

OBSERVATIONS FROM ONE HUNDRED CASES.

BY J. C. CLAYTON, M.R.C.S., L.R.C.P. LOND.,

CAPTAIN, R.A.M.C. (T.C.); ANÆSTHETIST, QUEEN'S HOSPITAL, SIDCUP, ROYAL EAR HOSPITAL, LONDON, AND HENDON COTTAGE HOSPITAL.

HAVING completed 100 cases of anæsthesia by the rectal ether method, the results seem sufficiently interesting to record. Although my personal administrations are 100, something like 450 have been given throughout the Queen's Hospital during the last 18 months. I am here dealing entirely with soldiers in more or less good physical condition, and have not been able to apply this experience to patients in poor physical condition or to women or children. Also the types of operation were entirely associated with facial work, such as plastic operations on the skin, rhinoplasty—with or without the removal of a rib cartilage—mandibular bone grafts, and plastic operations on the eye. Still, I feel that this form of anæsthesia could be, and doubtless is being, adapted to certain operations in civil practice, such as for tumours or removal of the thyroid gland, extensive glands of the neck, mastoid operations, nerve sutures, bone grafts, and breast operations.

Owing to various war conditions the most perfect procedure has been impossible; thus we may expect still better results. These difficulties arose owing to (1) the shortness of preparation, sometimes not even 12 hours; (2) the difficulty of obtaining the necessary tranquillity after the preliminary injection of morphia and atropine; (3) the inferior quality of some samples of ether; (4) the necessary substitution of pea-nut oil for pure olive oil; and (5) the inferior quality of the atropine.

The Technique.

(*a*) *Preparation.*—A dose of castor oil is given two nights before the day of operation, and an enema on the morning following. During the day preceding operation the diet should be light and the patient kept in bed. Six hours before the morphia and atropine injection is given the rectum should be washed out by catheter and funnel until the bowel is clean, saline solution being used. One-and-a-half hours before the time of operation an intramuscular injection is given of morphia gr. ¼ and atropine gr. 1/50. This should be given when the patient is on the bed, trolley, or table on which he is to be anæsthetised. He should then have perfect tranquillity in a shaded room for the next half-hour, lying, if possible, on his left side.

(*b*) *Induction.*—The patient lies on the left side with the knees drawn up. A vaselined catheter (size No. 12 to 16) is passed into the rectum 4 to 5 inches, not more. This is joined up to a tube and funnel by a glass connexion. The following mixture is placed in a glass measure and is stood in a basin of very hot water:—Olive oil, 2 oz.; ether, 5 to 6 oz.; either paraldehyde, 2 dr., or chloretone, 30 gr. Before actually introducing the mixture it is most important to explain to the patient what is going to be done, and particularly to impress upon him the necessity of saying immediately when there is the slightest desire to evacuate. Introduce the mixture very slowly, and on the slightest intimation from the patient that there is abdominal "pinching" with the desire to evacuate, stop the flow by compressing the catheter until the patient again intimates that the feeling has passed. When all the mixture is introduced clamp the catheter and leave it in the rectum.

The patient's head is next covered with a towel to encourage induction by means of re-breathing, and he is watched until asleep or unconscious. In most cases it will not be wanted, but occasionally it will be found necessary to produce a free airway. In from a half to one hour induction should be complete, but in certain cases a small quantity of ether or C.E. mixture on a mask is needed to complete it.

According to the nature of the operation a good airway must be established, either orally or nasally, with facility for giving some auxiliary anæsthetic if required.

(*c*) *Post-operative treatment.*—The patient is returned to bed, care being taken that there is a good airway, otherwise recovery is prolonged. The residual oil-ether is syphoned off by tube and funnel, again connected with the catheter left in the rectum. The rectum is washed out with either saline solution or a soap solution, and this is repeated until there is no smell of ether and no oil bubbles in the return. Finally, 3 oz. of olive oil are run in and the catheter removed. This introduction of olive oil is important as it seems entirely to mitigate proctitis, which otherwise would occur in a good many instances.

Variations in Technique.

Commenting on certain variations in the technique and dosage I would like to make the following observations:—

The addition of hyoscine gr. 1/100 to the morphia and atropine does not appear to have any advantage, and in some instances gives respiratory difficulties. I feel convinced that the addition of some drug, such as paraldehyde or chloretone, is of great assistance in furthering good anæsthesia. The only advantage the latter has over the former is that it does not produce profuse sweating, nor does it produce a flavour in the mouth. I found that increasing the dose of the ether in the place of either of these drugs did not compensate.

With regard to the dose of ether. Theoretically, the dose should be in ratio with the body weight; practically this does not appear to be so any more in this method of anæsthesia than in any other. The personal equation and fitness seem to me to play a much more important part. Out of 100 cases I have had an overdose in one instance—No. 95—and practically all the others have been on the light side, with doses increased from 5 oz. to 6 oz. quite irrespective of the weight. In this particular case I am convinced that the patient had a particular susceptibility to ether, and probably to chloroform as well if it were only known, but if the latter, he probably would not be alive. My reason for thinking this is because the loss of his respiratory centre was so sudden. He required 2½ hours artificial respiration before the centre began to work again. The pulse was rapid, but of good volume the whole time, and in a few hours he was fitter than many. This man was a heavier weight than many to whom I had given a similar dose.

Now, with a fairly fixed dose and a personal equation the same result cannot be obtained in every individual case. The result will therefore range from a complete anæsthesia in half an hour after introduction of the mixture sustained for perhaps three hours without any auxiliary administration, to an incomplete induction in an hour requiring auxiliary administration to complete the induction, and perhaps continued at short intervals throughout the operation. But even in the worst cases plenty of warning is given of the lightness of the anæsthesia, and a very little is required to counteract it. Restlessness during induction varies with the individual, and occasionally retching takes place for a few moments just when the taste of the ether becomes apparent, which happens in a surprisingly short time after introduction.

Results.

A comparison is given of the advantages and disadvantages.

(A) *Advantages.*—(1) A more pleasant induction; (2) less vomiting; (3) a more even anæsthesia; (4) less anxiety and exertion for the anæsthetist; (5) the elimination of bronchial irritation.

(B) *Disadvantages.*—(1) A lengthened preparation owing to the extra bowel irrigation; (2) more trouble for the nurse by reason of the after wash-out; (3) earlier hours for the anæsthetist; (4) occasional anal tenderness; (5) on the whole, a lengthened recovery, especially if a good airway is not maintained.

A Few Statistics.

	(A)	(B)	(C)	(D)
Number of cases	26	41	19	14
Average length of operation (hours) ...	2	2	2	2½
Auxiliary induction	17	30	15	9
Frequent auxiliary anæsthetic	5	10	10	4
Occasional ,, ,, ...	13	15	5	3
No ,, ,, ...	8	16	3	8
Returning the injection	0	1	1	0

(A) Morph. c. atropine. c. hyoscine. Olive oil c. ether 5 oz. c. paraldehyde.
(B) Morph. c. atropine. Pea-nut oil c. ether 5 oz. c. paraldehyde.
(C) Morph. c. atropine. Pea-nut oil c. ether 5–6 oz.
(D) Morph. c. atropine. Olive oil c. ether 5–6 oz. c. chloretone 25 gr.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF MEDICINE.

The Epidemic: Pneumonia in Macedonia.

A MEETING of this section was held on April 29th, Sir ARCHIBALD E. GARROD, the President, being in the chair.

Dr. J. BURNFORD read a paper entitled "Further Notes on the Epidemic, with Special Reference to Pneumonia in Macedonia." His movements had brought him by chance at the time coinciding with the beginning of the epidemic in France, at Woolwich, in Macedonia, and in the Dardanelles, with the army of occupation, where an outbreak occurred among Anzacs coming from the Jordan Valley. It would appear that infection was carried by human traffic, judging from the times at which the epidemic originated at different parts of the world, and there could be little doubt that overcrowding and poor ventilation were potent factors in the spread. The condition was essentially a toxæmia, which exerted its activity primarily and principally on the respiratory system and to a much less degree and less frequently on the gastro-intestinal tract and occasionally on the nervous system. The milder cases were strikingly similar: sudden onset, with malaise and pains in the head, back, and limbs, pyrexia, and intense congestion of the pharynx and upper air-passages without increase in pulse-rate and ending in two or three days by crisis or brief lysis. Increasing grades of severity were associated with more extensive involvement of the respiratory tract from above downwards. In the most serious cases there was general affection of the lungs and a most fatal type of pneumonia, in which the toxæmia symptoms were complicated by characteristic manifestations of pulmonary obstruction. In all cases the respiratory tubes were first affected and it was on the mucosa that the toxin particularly acted. Hence it was possible to separate out forms in order of severity: (1) pharyngitis with or without implication of the mucosa of the nose and sinuses; (2) laryngitis; (3) tracheitis; (4) bronchitis; (5) bronchiolitis; (6) "pneumonitis," with involvement of all the lung tissue. In any case the disease might terminate by crisis or rapid lysis as in mild cases. Hoarseness or loss of voice might persist for some time after the larynx had been affected. The adenitis, which was so marked a feature of the earlier cases, was not so marked in later ones.

The Pulmonary Form.

Dr. Burnford then dealt particularly with the pulmonary form, the manifestations of which, he said, were very varied. In the main the symptoms fell into two groups: (1) toxæmic; (2) mechanical, though the asphyxial state produced thereby presented symptoms closely resembling some due to toxæmia. Sometimes the toxæmic symptoms predominated, producing a drowsy state with indefinite physical signs of pulmonary disease. At others the obstructive lesions were more manifest, with coughing, cyanosis, asphyxia, and noisy respirations. In Salonika there was a period when the incessant and, for the most part, unproductive coughing made the night a veritable and painful din. But in the Dardanelles there was throughout an ominous quiet in the wards. The physical signs of involvement of the lungs were often most misleading at the onset, and even when in a few days definite evidence of consolidation of one or more lobes was manifest, it still must be appreciated that the entire lung tissue was affected in all probability. The physical signs of pulmonary involvement were of less importance than the objective signs and general condition of the patient.

The *recumbent position* was usual, and only rarely was there any desire to sit up. Some were tranquil throughout, others had a sense of impending death, which was nearly always justified. *Cyanosis* was a frequent and marked feature; it was often a better index of the extent of pulmonary disease than the physical signs, and was of great prognostic value. In the early stages and often during the long convalescence it was of lighter hue, the cheeks might be flushed, whilst the ears were deeply cyanosed; later it became more intense and general, and still later produced a dusky black complexion. It was evidently symptomatic of

an asphyxial state and unconnected with the toxæmia. Though of grave significance, deeply cyanosed patients might recover, often after many weeks. In convalescence it must be regarded as an index of lung damage and as a warning against unnecessary exertion. Venesection failed to relieve it, and in the most extreme case the patient, black in colour, died with asphyxia and severe agonal convulsions, but with a pulse which remained good to the end.

The *respirations* were increased out of proportion to the pulse-rate, which might remain normal. There might be breathing of the emphysematous type with prolonged expiration, or gasping and quick panting with scarcely any movement of the chest wall, or noisy and roaring respirations as if purely tracheal in character. In many cases there was actual distress, with or without exertion. These respiratory changes must be regarded as indicative of pulmonary affection and of prognostic import for: (1) they only occurred with the pulmonary form; (2) venesection failed to give relief; (3) histological examination showed sufficient destruction of aerating tissue to account for the symptoms; (4) temporary relief often followed administration of oxygen; and (5) alteration in the position of the patient produced no variability. Of grave import was the combination of intense cyanosis and rapid breathing.

The *pulse-rate* might be slow but often was raised to 100 or more, but not in proportion to the respiratory increase. Only rarely was there cardiac dilatation, and death did not occur from cardiac failure.

Other symptoms.—Occasionally cerebral symptoms were seen. Delirium might occur early or late. Lethargy was characteristic of the toxæmia. Deafness might arise early. Vomiting was frequently met with, accompanied by a furred tongue and occasionally by diarrhœa. Slight albuminuria often accompanied the fever. Hæmorrhages were not uncommon. Epistaxis might occur in the early stages. There might be pinkish blood-stained sputum, but the characteristic rusty sputum was rare. Sometimes the sputum contained dark blood and clots, and sometimes more brisk hæmorrhage resulted.

Physical signs were very anomalous and varied even in the same patient from time to time. One might find: (1) crepitations with absolute dullness; (2) crepitations with impaired resonance; (3) crepitations with whispering pectoriloquy with or without tubular breathing; (4) silent lung; (5) choked lung into which air entered with difficulty, relieved sometimes by coughing. The signs of localised consolidation were always misleading, for the entire lung tissue was probably affected. Rarely pleural effusion occurred, and then even with pectoriloquy and tubular breathing.

The *sputum* was very variable. Usually there was little in the early stages, sometimes it was blood-stained and pinkish, sometimes tenacious, sometimes containing bright blood. The cough might be insignificant, or considerable and painful. In some cases there resulted albuminous glairy fluid with muco-purulent matter therein. With resolution the sputum changed to the nummular form, and with breaking-down lung tissue became purulent.

Progress.—In favourable cases the acute symptoms ended by crisis in some, by lysis in most. Though the toxæmia might be overcome, the pulmonary lesions did not immediately resolve. Resolution was always slow and might be prolonged for weeks, consequently both increased respirations and cyanosis might persist for a long time. The silent and unresolved lung might persist for weeks and perhaps indefinitely. It might undergo reparative changes or disintegration with abscess formation. Signs of excavation with purulent expectoration and hectic temperature might herald a fatal result. The voice when lost often did not return for weeks, and there might be actual ulceration of the vocal cords. Death might occur from acute œdema of the lungs at the beginning.

Pathological findings.—Briefly, there occurred tracheitis, bronchiolitis, consolidation, softening, and emphysema. The lesions were more extensive than the first glance would suggest, for there was a generalised bronchiolitis even in the emphysematous and more normal parts. However varied the anatomical picture of broncho-pneumonic consolidation two conditions were found at every autopsy: universal friability of lung tissue and emphysema. The lungs were friable throughout, often being almost butter-like in consistence. The emphysema was both macroscopic and microscopic, and occurred even in the consolidated parts. These two conditions demanded special attention. It was evident that the specific changes occurred in the lungs, and that the entire lung tissue was implicated. Was there a destructive activity exerted by the toxin on the lung tissue in the first place which facilitated the emphysematous change, or was the widespread emphysema associated with so much destruction of elastic tissue as to produce the undue friability? In considering this question, he referred to the cases of acute bronchiolectasis occurring occasionally in children dying from broncho-pneumonia. It would seem unreasonable to expect resolution in the lung as it appeared post mortem, but investigation inclined him to the belief that no case was hopeless until fatal and the recuperative power was remarkable. There was no doubt that the lungs were extensively damaged, and clinical evidence pointed to the permanence of the damage—a fact to be borne in mind in dealing with the many convalescent cases.

Blood changes.—There was no inflammatory response, but leucopenia was the rule, though during prolonged resolution, and more especially in abscess formation, there was an increase of polymorphonuclear cells. The changes noted were (1) a relative lymphocytosis, (2) activity of adenoid tissue, which probably played a great part in the reaction to infection. General observation suggested an elaboration of an antitoxin in the patient's blood. The causes of death were: (1) œdema, (2) asphyxia, (3) exhaustion, and rarely (4) cardiac failure.

Treatment.

After dealing with prophylaxis by general hygienic measures, he spoke of individual treatment, which was purely symptomatic. The general management of the patient determined much and could be summed up as fresh air, rest, sustenance, and nursing. At the General Hospital to which he was attached in Macedonia the patients were treated practically in the open air. No restrictions were made in diet. Brandy and champagne were freely given, and in convalescence port wine. Medicinal treatment was of little avail. Salicylates relieved the pain in the toxæmic stage. Expectorants were useless. Inhalations of menthol or eucalyptus gave much relief. Morphia and, when obtainable, heroin, were used at all times to produce sleep. Camphor was given in small and large doses with no appreciable result. Atropine was used freely in cases of marked œdema, but was soon discarded. No appreciable effect could be ascribed to digitalis or strychnine. Cyanosis was relieved by oxygen in many cases. Quinine was given in large doses, often intravenously, in cases complicated by malaria, but no effect, either good or bad, could be determined. Poulticing gave considerable relief and appeared to do much good. Two vaccines were employed, one grown from a small coccus obtained from the lung of a patient immediately after death, the other a central laboratory vaccine of mixed streptococci. The results were identical with those in control cases. One patient was given serum from several selected convalescents, and slowly improved; it was the most serious case which ended in recovery.

Discussion.

The PRESIDENT said that most of the cases landed at Malta arose during outbreaks on troopers. He congratulated the author of the paper on providing so accurate and elaborate an account, which was too important and detailed to be satisfactorily discussed in the time available. He would merely indicate the following important features: œdema, foci of suppuration, cyanosis with scanty physical signs, delayed resolution, and the prevalence of secondary infections.

Dr. F. S. LANGMEAD said that the description given by Dr. Burnford was a very true picture of the disease as he had met it in Macedonia, and agreed more closely with his experience than any other account he had read. The paper was too full for discussion at that time. The main clinical features of the pneumonia as had been mentioned by the author were the severe toxæmia, the prominence of mechanical obstruction, which, in spite of the severity of the toxæmia, bore a greater proportion to it, than was the case in ordinary pneumonia, the irregularity of the fever, the indefiniteness of the course, the obscurity of the physical signs, the delayed or defective resolution, and the high mortality. He would mention three points only by way of emphasis. The sputum was not infrequently extremely purulent, but this did not necessarily mean extensive lung

destruction and was not necessarily fatal. There was sometimes grave depression leading to suicidal tendencies, and parotitis, often suppurative, occasionally gangrenous, was a not uncommon and very serious complication.

Dr. C. R. BOX said that the account given by the author was a very faithful description of the epidemic as it occurred in this country. The bronchiolectasis mentioned was of great interest. There could be no doubt that this change, often called "honeycomb lung," was a feature of bronchopneumonia, not of the croupous form. With regard to the unresolved areas, he had had an opportunity of watching some of them for a considerable time. Many of them seemed to remain almost unchanged.

SECTION OF OBSTETRICS AND GYNÆCOLOGY.

The Continued High Maternal Mortality of Child-bearing: the Reason and the Remedy.

A MEETING of this section was held on May 1st, Mr. J. D. MALCOLM, the President, being in the chair, when Mr. VICTOR BONNEY read a paper on the above subject. The paper appears in full on p. 775 of the present issue of THE LANCET.

The Discussion.

Sir FRANCIS CHAMPNEYS pointed out that the inauguration of the Midwives Act of 1902 was followed by an immediate and considerable reduction in puerperal mortality from sepsis in England which had been maintained. This improvement must have been due to midwives only. No such marked change took place with respect to accidents and other diseases of childbirth. The present mortality and morbidity was largely preventable and must be prevented. It was important to ascertain by what class of attendant patients who died or were ill had been delivered. "Listerism" came in in 1870, but antiseptic midwifery was only begun in London lying-in hospitals in 1880, at the General Lying-in Hospital. The history of antiseptics was most curious. The main cause of puerperal sepsis and its remedy were discovered in 1847 by Semmelweis, but the medical world rejected him, and he died in despair, insane. The discovery was so completely forgotten that it was left for Pasteur and Lister to rediscover it, and the obstetric world, which might have marched in the van, had to come in at the rear, having wandered nearly 40 years in the wilderness.

He reminded Mr. Bonney that contamination from the bowel could not be very dangerous to the regions near the anus, as ruptured perineums generally healed quite well, and also that rectal surgery was not specially dangerous from sepsis. The mouth was highly septic, and yet wounds in the mouth after the extraction of teeth, biting of the tongue, &c., did very well indeed. He could not agree with Mr. Bonney's condemnation of teaching about "sapræmia." A case of sapræmia was one of the most picturesque of medical experiences. The diagnosis was generally only possible when the affection was over. But to see a woman, apparently gravely ill, recover in a few hours after the removal of retained products, was very striking, and he had seen this occur in innumerable instances. He quite agreed that much required to be done in the way of developing midwifery throughout the country with large and well-equipped hospitals and similar institutions. He did not think that it was feasible to provide institutions for the confinement of all parturient women, but he believed that the nation was determined that insanitary homes in which no woman could safely be confined should become a thing of the past. Mr. Bonney's picture of the "average lying-in room in the average middle-class home" was, he thought, a "composite photograph," for he could not believe that he had ever seen all the articles enumerated in his inventory in the same room at the same time.

The Danger of Infection.

Dr. HERBERT SPENCER agreed that statistics were not altogether reliable. He knew of no surgical operation in which there was such a breach of surface with such a low rate of mortality. He disagreed as to the need for taking so many precautions against sepsis. Mr. Bonney did not seem to be sure of the value of the antiseptic which he advocated. The patient, in his opinion, could be attended with as much safety in her own home as in any lying-in hospital. Only the ordinary precautions were necessary. The Germans had persuaded their mothers that they should go into a hospital for their confinements, and that it was dangerous for them to be delivered in their own homes; the Americans had done the same. It was an important fact that in patients operated on for ruptured perineum the wound healed by first intention. Nature had not made such a mistake as Mr. Bonney said; the obstetric area had had at least 15 years in which to gain immunity from *B. coli*.

Dr. AMAND ROUTH agreed with Mr. Bonney that obstetric examinations, manipulations, and operations should be treated exactly as surgical cases, but Mr. Bonney had brought no bacteriological evidence to prove that normal intestinal organisms could produce puerperal septicæmia. Mr. Bonney blamed nature for placing the birth area near the intestinal exit, but, roughly speaking, a common cloaca did not exist in placental mammals, except in some rodents where the placenta was discoidal, so that nature had deliberately placed the recto-vaginal septum between the urogenital and the intestinal exits wherever there was a birth separation of the placenta which involves an intra-uterine wound. If intestinal organisms were very infective hosts of mammalian animals would die of puerperal septicæmia. Think of what would happen when a litter of pigs was born in a pigstye. Operations on perineums ruptured into the rectum, weeks after the occurrence, with intervening soiling of the rupture area by fæces were frequent, yet the plastic operation was quite successful. Individuals were immune against their own normal organisms. For the treatment of early septicæmia he recommended prompt digital exploration of the uterine cavity under anæsthesia and the gentle use of a blunt flushing curette or a bunch of gauze held in forceps followed by a free application of a 1 in 4 iodine solution all over the mucosa and especially over the raised placental site.

Hospital Accommodation: The Question of Fees.

Dr. H. RUSSELL ANDREWS said that in a very large number of cases exploration of the uterus was attended with good results. Some such scheme as that which had been sketched was needed for those women who were too poor to afford the attention and treatment which were needed. The fee of the practitioner was £1 1*s.*, and for this he was to attend the mother at her confinement and the mother and baby for ten days. It was impossible for him to be able to give much time, and forceps were often put on at too early a stage. For this class of patient hospitals were needed. The question of fee he considered to be very important.

Dr. A. LAPTHORN SMITH also urged the importance of the fee. The practitioner could not be expected to spend all the time needed for £1 1*s.* In the homes of the mothers there was no air or light, water was very scarce, especially for the woman to drink. Efficient drainage was important. The patient should get up and sit on the chamber every four hours when she wished to micturate or open the bowels. Clots, &c., easily came away which would have provided suitable soil on which organisms might grow. Repair of perineal tears should be carried out immediately; one stitch might save infection. It was important that the expectant mother should see the doctor when six months pregnant.

Mr. H. CHAPPLE said that a very large number of women died in labour, but a still larger number were crippled in health from then onwards. The cavity of the uterus had been proved to be sterile; any infection, therefore, must be introduced from without. Modern ideas of asepsis should be carried out to the fullest extent; organisms were introduced into the uterine cavity by those who attended the labour.

Points in Prevention and Treatment.

Dr. F. J. MCCANN said that he would like to see State-subsidised hospitals all over the country. Closely allied was the question of housing. People must be taught the gospel of cleanliness, and here the clergy and health visitors had a large sphere of work. In the meantime, two things might be done. Obstetric outfits should be provided for the poor, if necessary out of part of the maternity grant. It should be possible to put these outfits on the market for 10*s.* each. Provision should be made for the admission of cases of puerperal infection into all hospitals. Patients often had to be carried about from one hospital to another, being told that there were no beds available. A certain number of beds should be set aside for cases of puerperal sepsis.

Mr. W. S. A. GRIFFITH asked if the measures which Mr. Bonney advocated for the lying-in woman were necessary. He spoke of the reduction which had taken place in the number of cases of parametritis in his own experience. As a house surgeon he had made post-mortem examinations on 50 cases, whereas he had seen but one case in the last 12 months. He thought that the greatest amount of improvement must have occurred among the poorer classes of patients. For the fee given it was impossible for a doctor to give the time necessary.

Mr. S. G. LUKER said that the belief that uterine infection came from without was borne out by the manner in which such infection spread in a ward. He did not agree that infection took place from the anus. Septicæmia did not occur after operations on the rectum, bowel, or abdomen. This was very noticeable in the case of war wounds. He urged the need for maternity hospitals, but appealed also for the middle classes, who were often as badly off for proper treatment as were the poor.

Mr. R. A. GIBBONS said that large lying-in institutions were needed with whole-time paid officials. Each institution should form a centre from which help could be sent out to those in poor-class practices.

Mr. GORDON LEY said that the vast majority of cases of eclampsia were acute. Infection was generally carried into the uterus from outside. With regard to clearing out the uterus he considered that it should be done within 24 hours of the rise of temperature. In some cases there was a rise of temperature, but nothing to suggest that there was anything in the uterus, and if it were explored in these cases the patient was made worse.

Reply to Discussion.

Mr. BONNEY, in his reply, said that his paper was intended to provoke criticism. He wanted to get obstetrics moved out of the rut in which it had stuck so long. Some of the speakers demurred to the elaborate technique he advocated, but the orthopædic principle of "over correction of a deformity" was the right one to apply in dealing with the backward condition of obstetric art. The regime of a modern operating theatre supplied many examples of precautions the direct effect of which on the operations was probably small, but which were valuable in helping to keep the standard of asepsis up to the highest possible pitch. In regard to the virulence of bowel organisms a great distinction must be drawn between tissues, their normal habitat, and those to which they were entirely foreign. In the case of the latter the results of infection were very serious. As an example he cited the abdominal wound in "interval" appendicectomy. If the stump of the appendix was allowed to touch the wound suppuration resulted in a large proportion of the cases. Still more striking examples were the radical abdominal operation for cancer of the cervix, in which a wound of the bowel was invariably followed by sepsis so violent that the patient usually died of it; and abdomino-perineal excision of the rectum, in which the recovery of the patient almost entirely depended on the care that was taken to absolutely prevent the implantation of bowel organisms into the great cavity left after the extirpation.

The investigation carried out by Mr. A. Foulerton and the speaker 15 years ago showed that *B. coli communis* was present in the uterus in most of the severe cases of puerperal sepsis. He would also remind them that puerperal sepsis occurred chiefly in primiparæ in whom a rupture of the perineum, creating a culture surface for intestinal organisms, was invariably present. The passing of the Midwives Act was immediately followed by a fall in the mortality, but that rate of improvement had not been maintained. This is what one would have expected. Most of the good to be obtained from the Act had already been conferred, and further marked improvement can only be effected by a radical change in the conditions under which midwifery is practised.

The Obstetric Helper.

Dr. LAPTHORN SMITH read a short paper in which he described a device which he had found very useful in controlling the movements of patients during forceps delivery and which he called "the obstetric helper." It weighed 5 oz., occupied a space of 4 by 3 by 2¼ in., and consisted of a band 64 in. long and 2¼ in. wide, made of two plies of stout white canvas stitched together. At each end a snap hook was firmly attached. At 12, 18, and 24 in. from the ends three 1-in. tinned-iron rings were firmly fastened so that a loop of three different sizes might be made by hooking the snap on the first, second, or third ring according to the size of the patient. As soon as the patient was asleep the band was passed over the shoulders, the knees drawn up to the chest, and the loops passed around the legs just above the knees. It could be used equally well with the patient in the dorsal or in the left lateral position. It was much lighter and smaller than the Clover crutch, and it could be sterilised by dry steam or by washing and boiling, the steel snap hook being taken off and afterwards replaced.

THE MEDICO-LEGAL SOCIETY.

A MEETING of this society was held on April 29th at 11, Chandos-street, W., Sir JOHN TWEEDY presiding, when Dr. NATHAN RAW, M.P., read a paper on

The Position of Medicine in the State.

Dr. RAW, premising that he had no intention of discussing the position of the individual medical man, indicated what he conceived should be the position of the medical profession as one of the units in the future organisation of the State, and dwelt upon the factors that had hitherto prevented the due appreciation by Governments of the profession as a whole. He described the conditions limiting the weight, in a Parliamentary sense, of the influence exerted by the profession, and exhorted the advantages of unanimity and collective representation in order that wise measures be adopted for the amelioration of the public health. That the promotion of the public health by administrative and legislative activities should be one of the chief ends of government in the future, the speaker regarded as indisputable and necessary; and, after commenting upon the condition of the population as shown by medical examination of recruits during the war, he proceeded to examine in detail the sources of this inferiority, laying particular stress upon the importance of tuberculosis, venereal disease, and alcoholism, and urging the rehabilitation of the birth-rate. The great triumphs of preventive medicine in respect of small-pox and typhoid fever were extolled, and attention was drawn to the still enormous mortality in the Orient and elsewhere from plague and cholera, as exemplifying the difficulties of solving some epidemiological problems. The importance of the housing question in relation to tuberculosis was emphasised, and the bringing about of a general rise in wages was advocated as tending to solve existing difficulties. Dr. Raw considered the adoption of measures of reform in dealing with mental disease as amongst the pressing necessities of the day, and condemned the imperfections of the Insurance Act, especially their failure to provide adequate hospital accommodation for the insured worker. Finally, the speaker earnestly advocated the liberal endowment of centres for research, as he felt that it was only by research that we should arrive at the conclusions which would guide us in authoritatively advising the Legislature and Executive.

Discussion.

Sir ROBERT ARMSTRONG-JONES said that the war had taught us that it was possible to deal with incipient mental symptoms in the ordinary military hospitals, and he hoped to see it possible for every case of mental illness to be treated in the earlier stages in our general hospitals. He hoped that the country would not return to pre-war conditions in respect of the liquor trade. The speaker also criticised the Dogs' Protection Bill, and spoke of the good work done for the community by the Poor-law guardians.

Dr. MORGAN FINUCANE urged the need for the amendment of the Insurance Act and for its better administration, and criticised its effects upon the practice of medicine.

Dr. LIONEL WEATHERLY stigmatised the Lunacy Act of 1890 as a stumbling-block in the way of the early treatment of mental disorders, and dilated upon the shortcomings of both the Insurance Act and of philanthropists in the provision and maintenance of sanatoriums and hospitals.

Mr. A. H. TREVOR expressed his personal sympathy with the desire to see such amendments of the Lunacy Act as would enable certain early cases to be treated for a limited period, without certification, but subject to certain safeguards. He could not, however, allow himself to be taken

as assenting to the remarks made by Dr. Weatherly in denunciation of the Act of 1890. Mr. Trevor indicated that the subject of the treatment of early cases of mental disorder had long received the attention of the Board of Control, and that definite efforts had been made to obtain legislation in this direction.

Dr. B. H. SPILSBURY thought that Dr. Raw was a Parliamentary optimist. For himself, he believed that the greatest obstacle to progression in matters of public health lay in the ignorance of the masses—an ignorance that should be combated by education from earliest life.

Mr. WALTER WILLIAMS, speaking as a layman whose family had for several generations been connected with public life in South London, asked how it was that the enormous improvements in sanitation made in Southwark in the last 30 or 50 years had been accompanied by, relatively, so slight a reduction in the prevalence of tuberculosis.

Dr. F. G. CROOKSHANK said that while in absolute accord with Dr. Raw's objectives, he was a little incredulous as to his arguments. A general rise in wages was very well, but what would it avail if accompanied by a rise in prices? Venereal disease might diminish with greater sobriety, but Sir Robert Armstrong-Jones had himself deplored the great ravages of venereal disease during these years of enforced abstinence. He (Dr. Crookshank) had noticed repeatedly in France that the convivial soul was not the most frequent victim of venereal disease. Again, a large number of discharged soldiers now suffering from tuberculosis were clean-living and non-alcoholised young men—a fact that required explanation, as it was difficult to see how the liquor control had helped such men. Dr. Raw had recommended research as the great solvent of public health problems. Real research, comprehensive all-round investigation, was, of course, indispensable, but subsidised research had in the past been lamentably sterile, and never more so than when the funds available were expended in the pursuit of over-specialised lines of inquiry by investigators who were dependent upon their adherence to orthodox and conventional modes of thought.

Dr. RAW briefly replied.

SOCIÉTÉ DE BIOLOGIE, PARIS.—The following is a summary of some of the papers read at the meeting of this society held on April 12th :—

Ameuille et M. Sourdel.—Excretion of Potassium Iodide.

L'iodure de potassium injecté dans les veines s'élimine parallèlement par l'urine et par la salive chez le sujet sain. Dans le cas d'insuffisance rénale, il n'y a pas plus l'élimination salivaire qu'urinaire. Il semble que l'iodure soit fixé et retenu par les tissus.

M. Molliard.—Physiological Significance of Oxalic Acid.

La production d'acide oxalique correspond à une réaction des cellules végetales vis à vis d'une tendance d'alcalinité du milieu nutritif. On peut provoquer la formation de l'acide oxalique en substituant au liquide de culture des solutions de carbonate neutre de sodium ; toute la soude est rapidement neutralisée à l'état d'oxalate ; on observe une production analogue d'acide oxalique dès le début du développement mycélien lorsque l'aliment azoté est constitué par le nitrate de potassium.

F. Maignon.—Fat-Albumin Ratio in Rationing.

Toute ration doit posséder le minimum de graisse nécessaire pour, l'utilisation économique et non toxique de l'albumine qu'elle contient. Le rapport adipoprotéique devient un des facteurs essentiels du rationnement. Pour l'ovalbumine et le saindoux chez le rat blanc, il doit être au moins égal à l'unité. Or dans l'alimentation naturelle des jeunes animaux, mammifères à la mamelle et oiseaux pendant la période fœtale, ainsi que dans l'alimentation carnée chez l'adulte ce rapport est très voisin de l'unité.

Her Highness Princess Marie Louise visited the Summer Congress of the Section of Laryngology at the Royal Society of Medicine on Saturday afternoon. She was received by Brigadier-General Birkett, C.B., C.A.M.C. (Montreal), Honorary President of the Congress; Dr. James Donelan, President of the Section of Laryngology; Sir Humphry Rolleston, K.C.B., President of the Royal Society of Medicine; Dr. W. Pasteur, honorary treasurer; and Mr. J. Y. W. MacAlister, secretary; also by Dr. Irwin Moore, one of the honorary secretaries of the Congress. The exhibition of plastic facial war injuries from the Queen's Hospital, Sidcup, was shown by Major H. D. Gillies, R.A.M.C., and there was an inspection of the rare books and manuscripts in the library, as well as the manuscripts and instruments of Sir Morell Mackenzie, who is regarded as the founder of British laryngology. These historical relics have, on the occasion of this Congress, been presented to the Royal Society of Medicine by Mr. Mayer.

Reviews and Notices of Books.

Diseases of the Skin. By JAMES H. SEQUEIRA, M.D. Lond., F.R.C.P. Lond., F.R.C.S. Eng., Physician to the Skin Department and Lecturer on Dermatology at the London Hospital, &c. Third edition. With 52 plates in colour and 257 text-figures. London : J. and A. Churchill. 1919. Pp. 644. 36*s*.

IT cannot be said that the past 10 years have seen any very notable addition to our knowledge of skin diseases. The illuminating work of Sabouraud on the ringworms, the impetigoes, and on acne, and the discovery of the sporotrichial infections belonged to the previous decade. We have indeed learnt to extend and to define the therapeutic uses of X rays and of radium in dermatology, of carbon-dioxide snow, and of the arsenical preparations in syphilis. A more general recognition of the limits of vaccine therapy has stimulated the study of chemiotherapy and has led to the extended employment of various metals in the treatment of microbic infections, particularly of colloidal metals. The war has been responsible for a very large number of cases of scabies, of streptococcal and staphylococcal infections, and of ringworm of the groin and extremities, and for the present prevalence of these complaints among the civil population. It has given us cases of bomb-eruption, of high-explosives dermatitis, of mustard-gas eruptions, and of trench foot. But there has been little, if any, advance in our knowledge of the important skin affections, such as eczema, psoriasis, lichen planus, lupus erythematosus, alopecia areata, pemphigus, &c.; and that Dr. Sequeira's text-book of dermatology has reached a third edition within a space of 10 years points to the popularity of the book, and perhaps to an increasing interest in dermatology on the part of the practitioner rather than to the need for new editions on account of any rapid extension of our knowledge.

While Sequeira's "Diseases of the Skin" now justly takes its place as a standard work on dermatology, it may be said without detriment that it has not perhaps the same interest for the specialist as, for example, the work of the late Dr. Radcliffe Crocker, with its wealth of personally observed cases and its notable summaries of dermatological literature; nor as that of Stelwagon, with its almost complete bibliographies on every disease of the skin; for it has been the aim of the author—an aim which he has most successfully reached—to write a book primarily for the student, with the hope that it might be of use to the practitioner, and historical references and discussions of debatable points have been purposely omitted. The book forms a very complete account of the whole subject, and gives clear and concise descriptions of every one of the hundreds of skin affections, with precise indications for their diagnosis and treatment. It is profusely illustrated with reproductions of drawings and photographs from the author's large clinical material, and it supplies just sufficient carefully selected references to readily accessible literature in case the reader should wish to supplement his knowledge.

The new edition has been carefully revised, without any increase in size. There are several new coloured plates—namely, of trench foot, of eczematoid ringworm of the toes, of necrotic tuberculide, and of dermatitis herpetiformis, and the original plates of pigmentary syphilide and of urticaria pigmentosa have been replaced by new ones. Among the new illustrations in the text are diagrams contrasting the pathological conditions of streptococcal and staphylococcal impetigo, photographs of eczematoid ringworm of the soles, of Hutchinson's teeth, of ulcus molle serpiginosum, of sclerodactyl, and of microscopical sections of urticaria pigmentosa and of leiomyoma. Among the new matter in the text are paragraphs upon trench foot and upon eruptions due to high explosives, and a list of plants which may give rise to dermatitis. In the useful appendix of formulæ for prescriptions we note that the Beiersdorf plasters of salicylic acid, creasote, &c., have been replaced by Leslie's plasters, but that lenigallol, a German drug, now almost unobtainable in this country, is retained in several prescriptions. In spite of war conditions, the high standard of paper, printing, and illustrations has been fully maintained.

Pensions and the Principles of Their Evaluation. By LLEWELYN J. LLEWELLYN, M.B. Lond., late Temporary Member, Appeals Tribunal, Ministry of Pensions, &c.; and A. BASSETT JONES, M.B. Lond., Temporary Captain, R.A.M.C., Military Orthopædic Hospital, Whitchurch, Cardiff, &c. With a Section on Pensions in Relation to the Eye, by W. M. BEAUMONT, M.R.C.S., Acting Ophthalmic Surgeon to the Bath War Hospital. London: William Heinemann. 1919. Pp. 702. 30*s.* net.

War Pensions: Past and Present. By Judge PARRY and Lieutenant-General Sir ALFRED EDWARD CODRINGTON, K.C.V.O., C.B. London: Nisbet and Co., Ltd. 1919. Pp. 180. 5*s.* net.

WHEN a piece of machinery breaks down its owner can call in a competent engineer who will be able to ascertain with tolerable certainty, or even more usually with exactness, the reason why it is unable to do its work. The engineer traces this to a defect in the machine's construction or in one of its parts, not detected, and perhaps not possible of detection, when it was first purchased and put into use, or he can advise, if he has evidence of an unusual strain put upon it, whether this has caused a breakdown which under normal conditions would not have taken place. As alternatives he may attribute the incapacity to "fair wear and tear," or to an accident, or external circumstance causing damage. With regard to the human frame, the medical man occupies much the same position as does the engineer in relation to the machine; and he is now having many frames of men shattered and weakened by war submitted to him for advice as to their best treatment and the restoration of their future usefulness. Like the engineer, he can detect the injury and attribute it to its cause in most cases correctly, but in dealing with the human machine, with a view to repairs, he begins at once to be at a disadvantage. He cannot supply a spare part to replace an amputated limb or an eye destroyed by gunfire, or restore to his pre-war condition, at any rate not in all cases, a man whose health has broken down under the strain of the trenches. Like the engineer, the medical man can advise that the machine can still be made useful by being put to do a less arduous task than formerly after all possible repairs have been carried out. He can advise indeed, but, unlike the engineer, he cannot and does not claim to do so with certainty or with a negligible risk of an occasional mistake.

He advises as an expert whose opinion is based on scientific study and experience, but who is allowed a margin of error owing to it being a man and not a machine that he has to consider. A further duty, however, is cast upon him, with regard to our sailors and soldiers, for which no parallel can be found in the functions of the engineer. We are not throwing our damaged men on the scrap-heap and leaving them to perish there, but are awarding them pensions which, liberally but justly assessed, will compensate them to some extent for lost power to earn their livelihood. The estimation of the loss of capacity and its probable future increase or diminution have to be provided for, and this can only be done with efficiency under the guidance of the medical expert. Here, again, he must be allowed a certain margin of error, in "casting the clinical horoscope," to quote a phrase used by Dr. Llewellyn and Dr. Jones, but without claiming to be infallible he must form and enunciate a definite opinion which can be reduced to pounds, shillings, and pence for the benefit of a pensioner. In the authors' words, "Upon the medical man is thrust the responsibility of evaluation, of translating pain and suffering in arithmetical terms, of calculating the effect of permanent injury." With this summary of the situation we agree, and we are able to add that the volume which Dr. Llewellyn and Dr. Jones have compiled should establish a position readily as a useful and practical text-book dealing exhaustively with its subject. The opinion of one medical man may differ from that of another as to the best method of treating a concrete case of injury, in his prognosis of the result of treatment, and in his opinion with regard to the future disability. He will, however, find it at all times useful to have before him a compendious record of points to be considered, and to know the principles which others have followed in assessing values in corresponding cases.

Dr. Llewellyn and Dr. Jones have dealt with their subject exhaustively. More than 100 pages have been devoted by them to tracing the history of pensions for disabled soldiers from a reference to Darius in the Book of Esdras to recent enactments and the latest schedules of specific injuries. It is, however, with the evaluation of injuries that they are principally concerned, and particularly with those points as to which official schedules offer no guidance. Evaluation with relation to the eye forms the subject of two careful chapters by Mr. W. M. Beaumont, the second of which is devoted to the consideration of the pensionable results of the loss of a single eye.

With the historical aspects of pensions in the early stages of the world's history medical men are less concerned than with the practical application of such provisions for damaged sailors and soldiers as are now in force. If any, however, should desire to be enlightened as to the history of pensions we are inclined to recommend to their notice the opening chapters of "War Pensions" by his honour Judge Parry and Lieutenant-General Sir A. E. Codrington, in preference to the fuller exposition in the volume referred to above. When we venture to attribute to the learned author of "Katawampus" a full share of credit for the lucid style and readable quality which distinguish this little work we imply no disparagement of his military collaborateur, and if we are wrong in our ascription we congratulate them both on the result of their collaboration. The object with which they have written has been to elucidate for their readers the obscure and confused story of war pensions in this country and to place on record an authentic account of the "Pensions Appeal Tribunal" and of some of its decisions. This tribunal was instituted in July, 1917, and sat for less than a year, being superseded by the present methods of appeal in June, 1918. It did most useful work, and many of its decisions of which record is now available form valuable precedents. The appeals were for men refused pensions who desired a final decision as to whether or not their disability was attributable to or aggravated by their military service, the question of aggravation being the subject of a large proportion. Besides the two joint authors named the tribunal was composed of Admiral Sir Wilmot Fawkes, Sir Norman Moore, Mr. Bilton Pollard, and Mr. Albert Bellamy, to the last-named of whom the volume under review is dedicated. More than one reference is made in it to the valuable services rendered by the medical members of a judicial body carefully selected with a view to securing efficiency. The joint authors give an interesting account of how they had to start by obtaining a clear definition of their powers, and to proceed to lay down their own rules of procedure before entering upon the hearing of appeals.

Disabilities of the Locomotor Apparatus the Result of War Wounds. By AUG. BROCA, Professor of Topographical Anatomy in the Faculty of Medicine at the University of Paris. Translated by J. RENFREW WHITE, M.B., F.R.C.S., Temporary Captain, R.A.M.C. Edited, with a Preface, by Major-General Sir ROBERT JONES, F.R.C.S., C.B., A.M.S. With 33 illustrations. London: University of London Press, Ltd.; Paris: Masson et Cie. 1918. Pp. 252–xvii. 7*s.* 6*d.*

THIS volume of the series of military manuals, under the general editorship of Sir Alfred Keogh, is intended to take the place of a second edition of the same author's "After Effects of Wounds of the Bones and Joints," which is now out of print. Professor Broca's preface contains many pregnant remarks on general surgery and orthopædics, and on the need of a knowledge of the latter for the proper treatment of the injuries of war. The English editor, Sir Robert Jones, emphasises and drives home by apt illustrations the truths enunciated by the author.

The book is divided into two parts, the first on articular, the second on non-articular lesions. The first part deals wholly with ankylosis, and the advice given therein is clear and sound. The second part is concerned with scars and lesions of the bony levers and with non-union of bones. It will thus be seen that this book has no pretensions to be a complete treatise upon war injuries, nor does it quite come up to its title, since it does not include the operative treatment of injuries of nerves. Nevertheless, it is full of valuable hints and of the reflections of a most experienced surgeon. Especially to be noted are the directions for the self-treatment of stiff joints by what is described as "home mechano-therapy." The instructions given are of great practical value, and not the least valuable feature of the method is the fact that it leads the patient to cure himself. It also saves a very great deal of time and labour to the massage staff.

While generally most conservative in his views, Professor Broca holds very decided opinions in favour of amputation of firmly ankylosed fingers and toes, and says that amputation of all five toes gives an excellent functional result. Differing from Sir Robert Jones and many others, he thinks that the position of choice for an ankylosis of the wrist is in the straight line or in extension of 20 degrees at most. He points out that in cases of stiff wrist it is useless to operate if the fingers are ankylosed, and makes the interesting statement that he has met with no case of ankylosis of the wrist in which the fingers were so movable as to justify excision of the joint. The author's doubts of the value of tendon transplantation in cases of permanent nerve palsy, such as that of the musculo-spiral, are hardly justified by experience in this country. As Sir Robert Jones points out in a footnote, such operations have been found most satisfactory in their permanent results if the technique is correct. The same remark applies to tendon fixation. The section on lesions of the bony levers is full of information, the diagrams illustrating the effects on neighbouring joints of mal-union of fractures being especially useful. The author is not an enthusiastic advocate of open operation for pseudarthrosis, whether by means of bone grafts, metal plates, wires or staples.

Praise is due to Captain White for the way in which he has rendered the book into idiomatic English without losing the precision of the French original. This he has done so well that no uninstructed reader would guess that it is a translation from a foreign tongue, of which many of the idioms are so different from our own.

Bodily Deformities. By the late E. J. CHANCE, F.R.C.S. Edited by JOHN POLAND, F.R.C.S. Eng., late Senior Surgeon to the City Orthopædic Hospital. In two volumes. Vol. II. London: John Murray. 1919. Pp. 338. Price 18*s.*

THIS volume consists of a reprint of lectures delivered many years ago (in the year 1852 and subsequently) at the City Orthopædic Hospital by Mr. E. J. Chance, and of abstracts of two lectures on club-foot by the editor, Mr. John Poland, who has also contributed some notes on Mr. Chance's lectures. We do not suppose that this book is put forward as a complete exposition of modern orthopædic surgery, and therefore it would be unfair to criticise it as such. It gives a good account of the bloodless treatment of deformities as it was practised in Mr. Chance's time, the greater part of which is valuable for all time, and Mr. Poland has carried out what no doubt has been a pious duty in recording the opinions of his former teacher and colleague, while adding notes on some of the more modern methods of treatment. We think, however, that he would have been well advised to omit a good deal of controversial matter of which the interest died long ago with the protagonists in the controversy.

The book is well illustrated and should be useful as far as it goes; and if read by the younger generation of orthopædic surgeons it will remind them that good results may be obtained in a number of cases by patience and painstaking without recourse to bloody radical procedures.

Bedside and Wheel-Chair Occupations. By HERBERT J. HALL, M.D. No. 5, Series II., of the Publications of the American Red Cross Institute for Crippled and Disabled Men.

THIS brochure contains the substance of some lectures given at the Boston School of Occupational Therapy. The writer has a sense of proportion; he makes clear that bedside occupations are only a means to an end and that they should be abandoned as soon as the patient is able to do something more valuable and purposeful. But used at the critical time of discouragement and despair, when the patient begins to realise what his handicap means, they serve to divert his mind and demonstrate that with care and patience almost any handicap can be overcome. At the Boston School young women are trained as reconstruction aides in bedside occupations, including weaving (hand-loom, bead-loom, and simple rug- and mat-making), simple woodwork, whittling and carving, basketry (reed and pine-needle work), block printing applied to paper and textiles, knitting, crochet, needlework and beadwork, and elementary applied design. Although the military medical authorities take the stand that the bedside occupations are 100 per cent. medical in their object and do not aim at developing real craftsmen, Dr. Hall holds that the quality of the products must not be neglected. Design is all-important; the services of the best designers existent must be secured. These crafts can be made to pay their way; for some years Dr. Hall has conducted a pottery concern and hand-weaving industry for his patients, both of which are successful commercially. He hopes that crafts will be taught in lunatic asylums to patients whose interest cannot be aroused in the routine of the kitchen, laundry, farm, or repair shop. The chapter on fatigue and bedside occupations should be useful to reconstruction aides.

Spirochétose Ictérohémorragique. Par LOUIS MARTIN et AUGUSTE PETTIT. Avec 13 planches hors texte en noir et en couleurs. Paris: Masson et Cie. 1919. Pp. 284. 15 fr.

THIS attractive volume is the latest addition to the excellent series of monographs published by the Pasteur Institute. It furnishes a critical survey of that particular variety of infective jaundice produced by the *Spirochæta icterohæmorrhagica*. The book is divided into three sections dealing respectively with the causal organism; spirochætosis in animals, experimental and otherwise; and the disease as it is seen in man. The first section contains several excellent photomicrographs of the parasite, and, in addition to a description of the various staining methods of service in demonstrating the morphology of the organism, there will be found full details of the technique involved in the cultivation and study of the spirochæte. An interesting discussion as to the mode of infection follows, and it appears that transmission of the disease by insects, though often suggested, has never been proved. The disease has definitely followed rat-bites—though this can scarcely be the usual manner in which the disease is spread—and experimentally it has been possible to transmit the disease to guinea-pigs in this way. In the early stage of the disease the organism is present in the blood and, as is well known, during the second and third weeks of the illness the organism is excreted by the kidneys, but a further point of epidemiological importance which needs solution is whether infection can be conveyed by the stools.

The section dealing with spirochætosis in animals is illustrated by a fine series of coloured plates showing the morbid histological changes in the viscera. Among these will be found beautiful reproductions of the karyokinetic figures such as are met with in the liver and kidneys, as well as representations of the cells concerned in the extraordinary "réaction hématophagique" which characterises this disease.

The section dealing with spirochætosis in man is the outcome of a careful clinical study of the disease and embodies an analysis of the results of other workers in the same field. A provisional classification of the varied clinical types which the disease assumes is attempted and the main features of each type are then passed in review. In the absence of jaundice it is clear that a clinical diagnosis of spirochætosis icterohæmorrhagica becomes impossible, and an appeal has to be made to various laboratory procedures. Among these may be mentioned the detection of the spirochæte in the urine or possibly in the cerebro-spinal fluid; the serum reaction of Widal; the direct inoculation into animals of the suspected urine, blood, or cerebro-spinal fluid; and, finally, the so-called "réaction des immunisines." In this test a lethal dose of the virus is kept in contact, *in vitro*, with 1 or 2 c.cm. of serum from the suspected case for a period of 15 minutes, after which the mixture is injected into a guinea-pig. The animal survives the test if the serum has been taken from a patient suffering from spirochætosis icterohæmorrhagica. This test, however, is only applicable from the fifth to tenth day of the disease, by which time the protective substances have been formed in amounts sufficient to neutralise the co-mingled virus. From the fact that the disease is spirochætal in origin, German and Japanese physicians have employed "606" and other arsenical preparations, but the authors point out that the existence of hepato-nephritis imposes great restrictions upon the use of such remedies. Serum therapy, which is on its trial, appears to be promising in its results.

The monograph constitutes the most able summary of this disease that we have seen. It is admirably illustrated, and serves as an excellent model of the way in which a subject of medical interest may be treated.

THE LANCET.

LONDON: SATURDAY, MAY 10, 1919.

The Progress of the Medical Parliamentary Committee.

AN important Conference was held on Friday in last week, at the instance of the Medical Parliamentary Committee, between the Committee and the representatives of medical and other organisations having as their object medical reform in a broad sense—i.e., the improvement of conditions in which the medical work of the country is done, the institution of legislation to that end, and the proper political representation of medical work and of the activities ancillary to medicine. A report of the Conference will be found on another page. The circumstances in which it took place are as follows. At a meeting of the medical profession held on Oct. 1st, 1918, at Steinway Hall, a resolution was proposed by the Right Hon. CHRISTOPHER ADDISON, M.P., at that time Minister of Reconstruction, and was passed unanimously in the following terms:—

"That in the interest of the national health it is essential that the considered views of the medical profession should be voiced by representative medical men in the House of Commons."

A temporary Parliamentary Medical Committee was thereupon constituted, with a mandate to put forward a scheme by which the unanimous resolution of the meeting could be carried into effect. During the past six months the temporary Committee, under the chairmanship of Sir WATSON CHEYNE, has met to receive reports from a small executive subcommittee, whose deliberations have been unintermittent; and as a result a scheme was prepared, intended to carry into effect the mandate. It was to discuss and approve this scheme that the Conference was summoned.

The scheme was embodied in seven resolutions, which are published in full in our report on p. 808, and which are so clearly worded that none of them requires any comment except the first and second, for, the principles and details of these two being accepted, the remaining resolutions outline a more or less inevitable procedure. The first resolution ran as follows:—

That a Permanent Medical Parliamentary Committee be formed for the purpose of: (*a*) supplying early information of the trend of opinion on health questions; (*b*) supplying early information of impending legislation to the constituent bodies; (*c*) facilitating communication between the several bodies affected by the proposed legislation; and (*d*) assisting in increasing medical representation in Parliament.

The resolution was recommended to the Conference by Dr. ARTHUR LATHAM, in a convincing speech, and in the debate which followed the main principle was accepted — namely, a Permanent Medical Parliamentary Committee with such objects as those defined. On the whole resolution two questions only arose which required consideration. The first, and smaller, was whether the information to be collected and collated by such a representative committee as was foreshadowed should be supplied only to medical Members of Parliament, as the resolution stated in its original form, or should be at the disposal of all and any who could make good their right to ask for it. Certain legislators present at the Conference appeared to believe that the original wording of the resolution might suggest that medical Members of Parliament were particularly in need of medical information, an "insinuendo" which we are sure was not contemplated by those who drafted the resolution. But in accordance with the views of several speakers it was agreed that it should be the duty of the Medical Parliamentary Committee, when established as a permanent body, to supply information on the trend of opinion on health questions to all who had a right to ask for it, in which amended form the resolution is printed above. The second and more important matter, which came under debate on the passing of the first resolution, was the attitude of the British Medical Association towards the Medical Parliamentary Committee. At the meeting of the medical profession in Steinway Hall in October, as well as on later occasions, the position of the British Medical Association can be fairly defined as one of opposition to the Medical Parliamentary Committee, on the ground that its existence was unnecessary. The Association, believing that it had done, was doing, and could do, much of what the Medical Parliamentary Committee proposed to do, felt bound to regard the Medical Parliamentary Committee as an unwanted organisation. Notwithstanding, however, that such was apparently the conviction of those responsible for the policy of the Association, the Association accepted the invitation of the Medical Parliamentary Committee to be represented at the Conference, and in taking this broad-minded and gratifying course they could not have sent a better delegate than Sir THOMAS JENNER VERRALL. The representative of the British Medical Association did not speak in opposition to the constitution of a Permanent Medical Parliamentary Committee, but put forward the claims of the Association to do the work lying before such a Committee in a sympathetic speech. The position which he took up was that the Association welcomed the existence of such a body as the Permanent Medical Parliamentary Committee proposed to be, but that, as far as he was prepared to be the spokesman of the Association, the details of the constitution could not be accepted, because of the

threatened reduplication of labour. In other words, whatever he might think himself, he believed that the Association would regard the newly created body as one whose labours would lead to overlapping. The views of the Council and of the Representatives of the British Medical Association must now be awaited, the question which has to be decided by them being whether the Association considers that, with its large and important membership and democratic organisation, it can itself do all which the new body proposes to do; or whether it will recognise the claims of the new body to undertake much which, at any rate hitherto, has lain outside the scope of the Association. For our own part we hope that the British Medical Association will lend its coöperation to a new body whose institution cannot possibly detract from the position enjoyed by the Association as the largest union of medical men in the country. The voice of the Association in any such federation of health interests as is postulated by the Permanent Medical Parliamentary Committee must be of the first influence, and it will be heard in directions where at present that voice is silent or misunderstood.

For the Medical Parliamentary Committee proposes to regard the union between medicine and the public from the public periphery rather than from the medical centre. Medicine in the past may not have suffered as much as other industries have done from assumed conflicts of interests between those who do the work and those for whom the work is done; but the opposition of interests, which exists, has been exaggerated by misunderstanding. It has long been evident that on medical progress depend all the best chances of an improved material and moral national life, and the common ground of effort between medical and public labourers has lately been increasing in extent at a speed that is almost alarming because the preparations for co-operation are lagging behind. Whatever may prove to be the precise scope of the work of a Permanent Medical Parliamentary Committee, no activity can be more fruitful than that which produces assurance in the mind of the public and of Parliament that medicine is being administered by men of public spirit for the common weal. And the manifest unfairness of much of the public treatment meted out to the medical profession in our conditions of service will receive swift remedy as that assurance sinks in.

The Maternal Mortality of Childbirth and the Teaching of Midwifery.

ONE of the problems which will require earnest consideration by the new Minister of Health is the present position of the teaching of midwifery to medical students and midwives. Obstetric medicine is essentially the branch of medicine in which prevention can and should play a very large part. There is to all intents and purposes no cure for puerperal fever, and yet it is a disease which is almost entirely preventable. That it is not more often prevented is one of the anomalies, and, indeed, scandals of the present-day practice of medicine. As Mr. VICTOR BONNEY points out in his instructive and important paper read before the Obstetrical Section of the Royal Society of Medicine (see p. 775), by far the commonest cause of death in childbirth is puerperal sepsis. Even as recently as 1915 over 1200 women lost their lives from this cause in England and Wales alone, and yet the occurrence of a case of septicæmia in that year, apart from military surgery, in a surgical ward of a well-conducted hospital would have been regarded as an event indicating some very serious defect in the management of the case. By the exact practice of asepsis or antisepsis surgeons are able to undertake operations in any part of the body in the confident expectation that there will be no septic infection, and yet at the present day puerperal fever, which is, of course, only surgical septicæmia occurring in the parturient woman, claims a very large number of victims and has a death-rate which has altered relatively very little during the last 70 years. It can be proved readily that the safest thing that can happen to a woman in childbirth is that she should deliver herself without any artificial aid, and it may be said without fear of contradiction that if in all cases of normal labour the patient delivered herself without the assistance of either a doctor or a midwife a large number of lives would be saved each year. This is a hard saying, but one which we maintain is true; in other words, the great majority of women who die from puerperal sepsis are infected by their attendants.

That in proper surroundings and with proper aseptic or antiseptic precautions puerperal fever is preventable is proved by the experience of lying-in hospitals; why, then, is it not prevented in private practice? The answer is to be found in Mr. BONNEY'S statement that "not much more than a bowl of antiseptic lotion stands between the practice of the present day and that of the 'sixties.' But a bowl of antiseptic lotion is not Listerism." It is promising to note that the teaching of midwifery and its defects is now engaging the attention of those who instruct in that subject, and there are many among the younger teachers who recognise the changes that must be brought about in the near future if any real improvement is to be effected. The apathy of the medical profession and of the public in this matter has been very marked; many writers have drawn attention to the prevalence of puerperal infection, the resulting morbidity and mortality of childbirth, and the grave consequences they entail, but the medical profession has been content to go on in the old way, and the teaching of our medical schools has done little or nothing to remedy a state of things in which, while septic infection following a surgical operation is regarded as a rare accident to be rigorously investigated, sepsis following a confinement is looked upon almost as a necessary evil in a certain proportion of the cases. We may not be inclined to agree with all Mr. BONNEY'S statements or conclusions, but we cannot

deny that he has laid bare the real cause of the evil and that he has propounded the appropriate remedy. Some of his critics may think it right to make fun of his dislike of the anus and his proposal to paint the perineum with one or other of the coloured aniline antiseptics, but we are glad to think that he has had the courage not only to expose the faults which are associated with present-day midwifery practice but also to lay down the only sound principles upon which the needed remedies can be based.

The present methods of teaching midwifery to medical students are extremely faulty, and if the conditions in London are not comparable in all details to those at certain other educational centres, none the less they call for urgent reform. The provision of sufficient accommodation in properly equipped (and properly staffed) lying-in hospitals, to which any woman who desires can obtain admission, is most pressing—it is one of the first problems which the new Ministry of Health must consider; while the education of the public in the urgency and importance of these matters calls for the coöperation of every member of the medical profession, and is a part of the solution of the problem in which everyone can take his or her share. The defective training of the student is mainly due to the fact that the major part of the teaching is done by registrars and residents who are themselves in the position of learners and often have had but little experience. While in medicine and surgery most of the practical work is done by members of the honorary staff of the hospital in surroundings which lend themselves to proper and efficient teaching, in midwifery practical teaching of this kind is not done at all or is carried out by junior men, sometimes in the lying-in ward of a general hospital, of which there are only three in London, or more often in the extern maternity department, among the entirely unsuitable surroundings which are portrayed so vividly by Mr. BONNEY. There is only one remedy—the teaching of midwifery must be done in the future in properly equipped lying-in hospitals under the same favourable conditions which obtain in the case of medicine and surgery. If the plan of providing whole-time properly paid teachers is to obtain in the latter two subjects, then the same must apply to midwifery, and in this way only, in view of the special conditions surrounding the practical training, will it be possible for the student to obtain his teaching in midwifery from teachers of equal experience and standing to those who are engaged in teaching him medicine and surgery. This will entail the provision of spacious central institutions properly equipped and officered, sufficiently large to enable all the students in London, for example, to be trained in them, and furnished with all the laboratory facilities necessary, not only for the carrying out of the pathological investigations necessitated by the treatment of the patients, but also for the carrying on of efficient research. In such surroundings only will it be possible for the student to be taught on the lines laid down by Mr. BONNEY, with which we are in complete agreement.

Euthanasia.

UPON one or two recent occasions the suicide of persons known to have been sick and suffering great bodily pain has formed the subject of investigation at inquests. Observations made upon these occasions by coroners and others have evolved a question, often raised before, which the public press has labelled as "the right to die," and which is undoubtedly of considerable interest from a social and legal point of view. Put broadly, the suggestion is this: that the religious, ethical, and legal sanctions which forbid suicide are of too comprehensive and inelastic a character, and that, in the case of illness from which there can be no recovery, and which is sure to entail a lingering and painful death for the person affected, it should be recognised that he is justified, legally and morally, in putting an end to his life. It is further proposed that the medical man attending the sick person should either advise him in forming his decision and confirm it, or should himself become his patient's executioner. We do not propose to discuss here the religious aspects of suicide, or to review the history of the laws relating to it in Christian and other countries. The medical profession, however, is deeply interested in the suggestion that its members should become official arbiters of life and death, where before it has been their duty only to use their powers to mitigate suffering and to prolong existence. Almost every doctor of fairly wide experience must have wished that death might speedily release from suffering a patient for whom he could foresee no future prospect save only increasing pain, and only one inevitable ending. He may even have wished that he himself, without becoming at law a murderer, and without any infringement of the ethics of his profession, might shorten the life of one who perhaps entreated him to do so. But whatever his instinctive desire, such action has always seemed out of question.

What would be the feelings of the medical profession on learning that there had been allotted to them the obligation definitely to advise patients to die; on learning that it was their duty to bring to a patient the means of death, or to use them with the patient's consent and approval? Even from a general and superficial contemplation of the points which appear to have recently attracted public notice it is difficult to believe that the nation would deliberately impose such responsibility upon the practitioner, or that he would willingly accept it. The provision of legal euthanasia for cases of hopeless suffering could be approved of with a clearer conscience, moreover, if we knew how a "hopeless" case is to be defined and recognised. The answer to the question is an invariable one—this function must be entrusted to the medical profession. The medical profession, however, would disclaim anything approaching the infallibility which would justify it in undertaking the task of discrimination in every case which might arise. Medicine can give instances, no doubt, in which it might have no difficulty in its prognosis of certain pain and of no less certain death within a limit, not too certain, of time. There would, however, be a wide range of instances where very painful conditions and a lingering death would

appear extremely likely, but not absolutely inevitable. Would a time-limit of probability of death be imposed upon the medical man, within which he must bring the case upon which he was asked to pronounce a verdict, and to carry out the sentence? Unexpected, or little-hoped-for recoveries are not unknown to medical science, and that science is straining its utmost powers to make recovery more frequent in many diseases which to previous generations have meant certain and painful death. "While there is life there is hope," is an old proverb that the medical man has to justify by providing examples of its application.

And there are other considerations, which do not seem to have occurred to those who are advocating the regularisation of suicide. Is the medical man to decide that the patient's worldly affairs are in such order that his departure from life may be brought about without further delay? Is the patient's decision to be conclusive upon such a point when he is weakened by illness and distracted with pain? Are the relatives to be consulted, and, if so, should their wishes prevail when they do not tally with those of the principal actor in the tragedy? Is a wife to be asked to consent to the hastening of her husband's end? A few months of life may be of great value in some instances, if not for the person contemplating death, at any rate for his survivors. The expected inheritance of property may render the hastening of death, at any rate, inexpedient. The unexpected inheritance of property is an infrequent, but possible, contingency, and death accelerated deliberately may take from the survivors of the deceased wealth which otherwise he would have passed on to them. Questions of life assurance will have to be considered. Any legislative enactment legalising suicide or death at the hands of the physician must assuredly take into consideration policies under which benefits are to be forfeited if his life is deliberately taken by the assured. Is the medical man to hold a consultation with the family solicitor before he gives effect to the suggested "right to die"? Mention of the family solicitor reminds us that in a large class of cases there would be no such person with whom to divide the responsibility. The law would have to be the same for rich and poor alike, and that which the medical practitioner would do for his private patients, presumably in return for a fee, he would have to do, should he be on the panel, for insured patients upon such terms as the Insurance Commissioners might impose. Of course, the whole matter might be so arranged as to relieve the general practitioner from responsibility. An official medical arbiter might act in such matters in conjunction with a legal assessor, but they would not be enviable posts. The questions that might be raised after the death as to whether the conditions in fact justified the legal murder would in themselves constitute no trifling menace to the peace of mind of the medical man, whether he acted in an official capacity or simply as the usual medical attendant. We do not claim to have exhausted the points affecting the medical profession which arise out of a topic now occupying the public mind. We have rather assumed religious and ethical obstacles to have been swept aside and a new principle justifying the shortening of life to have been evolved; and in this position have tried to point out the more obvious difficulties likely to beset the practical application of any such principle.

Annotations.

"Ne quid nimis."

HYGIENE FOR SCHOOL TEACHERS.

THE Board of Education has issued a hygiene syllabus setting forth the course to be pursued in teachers' training colleges. The syllabus is intended to serve as a model for general guidance, and the Board's final examination for students in training colleges will include a paper in hygiene containing questions based upon it. The ultimate purpose of the course is stated to be that the teacher should first practise a hygienic way of life and then be able to give practical lessons in hygiene to his scholars. To this end the subject should be taught in a simple and practical manner with clear emphasis upon the things that principally matter, so as to develop in the student a right attitude of mind and life to questions affecting the physical and social welfare of the child, rather than merely to provide a quantum of knowledge. In addition to the formal lectures, visits are to be arranged wherever practicable to any type of school or institution exhibiting points of interest in regard to child life and school hygiene, including elementary and secondary schools, special schools of various types, school clinics, school canteens or feeding centres, school baths, nursery schools, and creches. The actual amount of instruction in physiology and the structure of the body is to be left to the discretion of the several college authorities, as the value of such instruction admittedly depends largely upon the student's aptitude and previous grounding in science. For ourselves we do not quite see how it is possible to convey a working knowledge of the significance, for instance, of such common ailments of school children as adenoids and enlarged tonsils, sore throat, discharging ears, dental disease, defective vision, rheumatism, heart disease, bronchitis, tuberculosis, and deformities (all of which are scheduled in the syllabus) without, at least, a fair basis of physiology and human anatomy. The "aptitude" of a student unable to appreciate a simple account of the structure and function of the various systems of his own body would hardly qualify him for teaching at all. Instruction in sex hygiene is also to be left to the discretion of each individual college, the Board being satisfied that detailed teaching of sex hygiene is inappropriate in the public elementary school. "Still less appropriate is any direct reference to the cause and prevention of venereal disease." The wording of the syllabus apparently leaves it open to training colleges to give no instruction whatever on this subject to their students, and we can only hope that the proposed presence on the staff of a medical man or woman to deal with the whole or part of the syllabus will materially influence the course adopted. No advanced course is laid down in the subject of hygiene, but a mark of distinction may be awarded to a student taking the ordinary course in hygiene and in physical training who shows a thorough knowledge of hygiene and reaches a high standard of work in physical training. The first examination, based on the new syllabus, will be held in 1921.

The syllabus may be obtained through any bookseller or directly from H.M. Stationery Office for 1*d*.

TRAUMATIC TOXÆMIA.

IT is pointed out by Mr. Cuthbert Wallace, Major-General, A.M.S., in his introduction to the Twenty-sixth Special Report of the Medical Research Committee that surgeons during the war found themselves unable to distinguish accurately between the effects of hæmorrhage and those of wound shock as it appears when there is reason to believe that little or no blood has actually been lost. The Report presents a consistent and fairly complete explanation of why this is so. It has become recognised that one of the most potent causes of wound shock is extensive injury of tissues, especially of muscle. In the second section it is shown by Dr. H. H. Dale, Dr. P. P. Laidlaw, and Major A. N. Richards that a particular product of protein disintegration—histamine—produces in anæsthetised animals a condition extraordinarily like that of wound shock, and that this condition is especially characterised by a deficiency in the volume of blood in effective circulation, caused chiefly by a dilatation of the capillaries throughout the body and an accumulation therein of stagnant blood, but also accompanied by an abnormal permeability of these vessels to the proteins of the plasma, so that fluid leaves the circulation and there is brought about a further decrease in the volume of the blood. Although we do not know definitely whether histamine itself is produced by destructive lesions of tissues, it is to be remembered that this substance represents a group of degradation products of proteins, some of which must undoubtedly be formed. Sections IV., V., and VI., by Professor W. M. Bayliss and Colonel W. B. Cannon, describe experiments on anæsthetised cats and dogs in which it is shown that extensive injury to the thigh muscles results in the gradual onset of a state of shock, which is not prevented if the nerves to the limbs had been previously divided, but is prevented if the blood-vessels are occluded. It is therefore due to the passage into the circulation of some chemical toxic substance. Section VII. consists of observations made by Major J. W. McNee, with Captain A. F. S. Sladden and Captain J. E. McCartney, on a number of wounded men in a resuscitation centre. In these cases the connexion between extensive injury of muscular tissue and severe shock was clearly made out. Bacterial infection was definitely excluded. A striking fact in many cases was the immediate improvement brought about by rapid amputation, or even by the application of a tourniquet. There was found to be diminution of the blood volume, and in consequence a low blood pressure. The factor of diminution of blood volume forms the subject of the eighth section, by Captain N. M. Keith, who investigated the question by the use of the vital red method. This phenomenon was found to be a constant fact in shock without hæmorrhage, sometimes amounting to a disappearance from circulation of 50 per cent. of the blood. It was naturally still more obvious when hæmorrhage had occurred in addition. Recovery was associated with increase in blood volume, but in fatal cases the blood-vessels were incapable of retaining fluid. It appears that the combined effects of hæmorrhage and injury are greater than the sum of the separate effects. The indication for treatment, as in the case of hæmorrhage, is clearly to increase the volume of fluid in circulation. It is stated by the above observers that they found no advantage in blood over gum saline. Certain cases did not respond to either, and it was found that neither of these fluids was retained in the circulation in such conditions. The permeability of the capillaries had suffered by prolonged anæmia, or toxic action, to such a degree as to be irrecoverable. In the final section Colonel F. W. Mott describes pathological changes in the nerve cells of these fatal cases, such as are produced by prolonged anæmia. These effects doubtless play their part in preventing recovery. Thus, a toxic product similar to histamine is produced in injured muscular tissue. Entering the circulation, this produces a widespread capillary dilatation, along with more or less permeability to proteins, resulting in diminution of blood in circulation. If this state is not too severe, or has not lasted too long, it is recoverable by intravenous injection of blood or gum saline. The additional injury introduced by operation frequently brings about an increased state of shock, necessitating intravenous injection during or before the operation. Incidentally it may be remarked that the basis of the experimental work on which the above treatment is founded is to be sought in Professor E. H. Starling's researches on lymph production, which were made on dogs and could only have been made on these animals.

THE POONA SEVA SADAN.

IN these days of unrest in India it is pleasant to recognise the good work towards the maintenance of friendly relations which has been, and is being, done in that country by some of the more intelligent of its inhabitants. Nearly 14 years ago there was founded by the late G. K. Gokhale, C.I.E., a small body of social workers who, calling themselves the Servants of India Society, have devoted their lives to the promotion of the true interests of the Indian people. The activities of this society take many forms, and among these is to be included the initiation, with the assistance of Mrs. Ramabai Ranade and other ladies, of the Poona Seva Sadan, an institution for the education of women. Starting in 1909 with two classes and 20 students, the Seva Sadan had, according to a report published last year, progressed so far that it had enrolled 550 students, divided into 36 classes, for the study of many branches of knowledge. The honorary general secretary of the Seva Sadan is Mr. Gopal Krishna Devadhar, M.A., senior member of the Bombay Branch of the Servants of India Society, whose credentials are sufficiently guaranteed by the references to his work which were made by Lord Willingdon, ex-Governor of Bombay and present Governor of Madras, at a meeting of the East India Association in February last. Mr. Devadhar, who has just returned home after a lengthy visit to this country under Government auspices, is organising in Poona the training, at the Sassoon Hospital, of a number of Indian women as nurses, midwives, and sub-assistant surgeons or junior doctors. The scheme covers three and a half years of a daily routine extending over eight or nine hours and embracing all departments of hospital work. A diploma is awarded to those who pass the three appropriate examinations, and the women then proceed to take up duties in Government or private hospitals. It is proposed to send every year to this country one or more of these trained women for a further training in nursing or its allied interests—e.g., the work of the lady almoner, the management of children's clinics, or some form of charitable work, and in furtherance of this object there has been constituted, under the presidency of Lord Reay, the London Association of the Poona Seva Sadan. A meeting in connexion with the movement was held in the Central Hall, Westminster, on April 14th,

when Mr. Devadhar explained his proposals to an audience which included many friends to the cause of Indian progress. We understand that the St. Thomas's Hospital authorities have promised their help in carrying out the scheme, and any friends desirous of lending pecuniary assistance can do so by communicating with the secretaries of the association at 26–27, Hatton-garden, Holborn, E.C.

THE RETAINED PLACENTA.

IN the *Correspondenzblatt für Schweizer Aerzte* of April 19th Dr. Eugen Frey-Bolli of Aarau, describes the manual removal of the placenta as one of the most risky obstetric operations practised at the present time, being followed, he alleges, in 60 per cent. of cases by febrile reaction in the puerperium and (quoting Alletse) having an actual percentage mortality approaching 8. In the University Women's Clinic at Frankfort-on-Main, under the direction of Professor M. Walthard, where Dr. Frey-Bolli worked as assistant, an average of nine digital removals in every 1000 births has been necessary of late years. In order to avoid this necessity Dr. Frey-Bolli has revived a method for removal of the retained placenta without the introduction of the hand or of any instrument, originally proposed by a Frenchman, Dr. B. Mojon, emeritus professor in the University of Genoa, and described in the *Zeitschrift für Geburtskunde* of the year 1827. Dr. Mojon injected cold water slightly acidulated with vinegar with some force into the umbilical artery through the cut end of the cord, and found that the sudden impulse and the displacement of the placenta so caused, as well as perhaps the effect of the cold shock and of the actual increase in weight of the placenta, resulted in after-pains which emptied the uterus without further ado. His communication, in admirably brief form, received an editorial note by Dr. Nägele warmly recommending the procedure. A certain Dr. Astrubali, of Rome, later contested the priority of the method, stating that he had taught his pupils to use it in the year 1814. Dr. Frey-Bolli employed warm normal saline in place of cold water, injecting 300 to 600 c.cm. into the severed umbilical vein until the cord attained a certain degree of tension, indicating sufficient filling of the placenta without risk of bursting the smaller vessels. During the years 1916 to 1919, out of 3201 births occurring at the Frankfort Clinic 53 cases arose of placental retention associated with bleeding. After adopting the method of "turgescing" the placenta the necessity of digital removal of the placenta disappeared, and in 1918 no single such interference was necessary. Of the 53 cases mentioned, in 25 the turgid placenta was expelled spontaneously, in 22 after gentle abdominal expression, in 4 others employing the Credé method under anæsthesia. The results of turgescence were the more favourable in proportion to the earliness at which it was carried out; out-patients brought into the clinic after much manipulation outside reacted relatively badly. On the ground of his three years' experience at Frankfort Dr. Frey-Bolli recommends the procedure for general adoption.

There can be no doubt that the manual removal of the placenta is one of the most dangerous of the manipulations of midwifery practice. Fortunately, the number of cases in which it is necessary is relatively very small, and quite possibly in the practice of some obstetricians it is resorted to too frequently. There are very few cases in which, if the patient is left a sufficient length of time and in which the ordinary methods are employed, the placenta cannot be expressed or is not expelled spontaneously without the necessity of introducing the hand into the uterus. Dr. Frey-Bolli's method is certainly ingenious, but would appear not to be free from the danger of washing away clots, and would seem only applicable in cases where the placenta is still completely attached to the uterus, since if any separation has occurred the risk of bursting the vessels would be very great, and the necessary turgescence would not be obtained. We hardly think the method is one suitable for general adoption, nor, indeed, do we think that it would often be required.

RABIES.

THE appearance of rabies in Great Britain has followed a period of rapidly increasing prevalence on the continent. That the number of cases in these islands is increasing ominously is confirmed by reports this week, but the public should by this time be well guarded by knowledge and official measures. We must still preserve a rigorous exclusion of dogs from abroad, and perhaps, of other animals. In all probability the infection has reached us from France where the present serious situation has been the subject of several resolutions of the Académie de Médecine urging the authorities to take steps for the capture of all stray dogs and appealing to the public to assist in precautionary measures. We have received from a correspondent the following interesting particulars:—

"During my recent leave in Paris I became aware that it is considered by the authorities there that there is at present, not merely in Paris alone but throughout France generally, a serious and relatively enormous outbreak of rabies, which is especially frequent among stray dogs, such as tend to be adopted for longer or shorter periods by soldiers. Everywhere there are notices posted up at the instance of the Prefecture warning the public of the danger, and forbidding dogs to be allowed out of doors unless muzzled and held on the leash. With very few exceptions, all the dogs I saw out of doors were so muzzled and restrained. (See Prefectorial notice dated Jan. 15th, 1919.)

I understand that in 1913 there were only 3 cases of canine rabies observed in Paris, in 1914 there were 4 cases, and in 1915 5 cases. In 1916, however, there were 62 cases, in 1917 there were 56, and last year no fewer than 411. In the first 24 days of the present year 41 cases were found (and 63 during the whole of January), about three and a half times as many as in the entire three-year period, 1913 to 1915 inclusive, or three-quarters the entire number for the whole of the year 1917. This seems to indicate that this very serious state of affairs may become even worse in the near future. It is held that the food difficulties and fears of extra taxation (such as a more costly dog licence), instead of mending matters by reducing the canine population, have greatly increased the amount of rabies, as the result of people abandoning their dogs. These have wandered at large both in Paris and in the suburbs, where they have been bitten by mad dogs, and so have become infected and spread the disease.

In rural areas the same state of affairs holds good. In the provinces in 1913 there were from 120 to a maximum of 150 mad dogs in France (excluding Paris) per month; in 1915 from 240 to 280 were discovered every month (also excluding Paris). The figures given for the first six months of each of the three consecutive years 1916 to 1918 for canine rabies in France are said to be 1746, 1632, and 1778, in comparison with 864 during the first half of 1914—when the country was in its normal state previous to the outbreak of war. Finally, I am given to understand that the Institut Pasteur in Paris had 350 persons under treatment in 1918, against only 92 in 1914, an increase of no less than 380 per cent."

From another source we learn that the number of stray dogs captured by the Paris police has risen from 3773 in 1917 to 10,677 in 1918. In the United States 87 cases of canine rabies were reported between Dec. 1st, 1918, and March 1st, 1919, and three people have died from hydrophobia in the same period. During 1918 414 persons received anti-rabic treatment in New York City without a

single death. Of these, 255 had been bitten by dogs afterwards proved to be rabid. In 1916 only 154 persons were treated for bites by rabid dogs, and in 1917 the corresponding number was 278. It appears that rabies is far from uncommon in the rural districts of India among jackals, and this incidence seems to be increasing. Among the 5206 patients treated at the Kasauli Institute in 1917 no fewer than 869 had received their bites from jackals, which, like those of wolves, are usually of a serious kind. Investigations are therefore being made in India to ascertain whether the saliva of the jackal is more virulent than that of dogs and other animals, or whether this special virulence depends more on the multiplicity of the bites, their depth, and their situation.

THE SIGNIFICANCE OF THE WASSERMANN REACTION.

IF anyone had been able to devise a less intricate test for the diagnosis of active syphilis in all its stages the Wassermann reaction would never have survived to the present day. In default of such a discovery, and having constantly in mind the importance of an accurate diagnosis of syphilis, many workers have devoted their time and talents to the improvement of Wassermann's technique. The margin of experimental error has been steadily decreased; indeed, from the latest report of the Medical Research Committee[1] it would appear almost to have been eliminated. Surgeon Lieutenant-Commanders P. Fildes and R. J. G. Parnell here compare the clinical and pathological records of over 1400 unselected men. Their evidence is clearly tabulated and summarised, and has led them to two conclusions: (*a*) that clinical evidence confirms the positive results—i.e., that "a positive reaction actually indicates syphilis"; and (*b*) that "if a test is reported negative ..... it will be more or less improbable that the case is one of syphilis." These conclusions are very nearly justified. Out of 1177 cases which gave a positive reaction, only 65 were found without clinical evidence of the disease, and of these it could be said that "their condition was not inconsistent with the diagnosis of syphilis." It is unfortunate that amongst the unselected cases there were not more of whom the opposite might be true. The investigation would have been more convincing, also, by the inclusion of some cases suffering from other spirochætal diseases. With regard to the significance of the negative result it is to be noted that, although there was no instance of a negative reaction in an acute secondary syphilitic with a rash, amongst the 268 cases who had been infected 18 months or more before their blood was tested two did give negative results, one being a "manifest tertiary" and the other a cerebro-spinal case; and these are the cases in which the general practitioner will most need the pathologist's help. The technique is not yet perfect. Two papers which are published in this number of THE LANCET lay stress on the variable absorbability of different complements. The standardising of a complement may change a positive reading into a negative one. When many tests are being carried out at once there is room even for clerical mistakes as well as for errors of technique. The clinician, therefore, must not yet assume that with the pathologist's report the last word has been said in the diagnosis of syphilis.

[1] An Analysis of the Results of Wassermann Reactions in 1435 Cases of Syphilis or Suspected Syphilis. Special Report of the Medical Research Committee, No. 23, 1919, price 2*s.* net.

THE JOURNAL OF GENERAL PHYSIOLOGY.[1]

WAR may have somewhat circumscribed the activities of the great band of workers of the Rockefeller Institute for Medical Research—an institute almost unique in medical annals—but it has not affected the broad policy of its energetic directors. We give a cordial welcome to a new venture, the *Journal of General Physiology*, which is to be devoted to the explanation of life phenomena on the basis of the physical and chemical constitution of living matter. Perhaps we may remind our readers that this is another important addition to the many-sided activities of the institute, for besides "Studies" published from time to time on important medical subjects, it issues in addition the *Journal of Experimental Medicine* and the *Journal of Biological Chemistry*, so that in this new departure another phase of unexplored vital territory will be investigated. The combination of an experimental botanist, Professor Osterhout, with a comparative physiologist, Professor Jacques Loeb, is a sure earnest of a harvest. The journal will be issued bi-monthly, one volume of about 600 pages appearing in a year. There is no want of variety in the subjects included in No. 1. They range from "the Dynamics of Photosynthesis" to "Lutear Cells and Hen-feathering." We can refer only briefly to some results of general interest.

Professor Osterhout finds that minute amounts of photosynthesis in marine plants can be accurately measured by adding a little phenol-phthalein to the sea-water and observing the colour in the indicator. Ulva kept in the dark begins photo-synthesis as soon as it is exposed to sunlight and the rate steadily increases until a constant speed is attained.—E. Uhlenhut gives some interesting observations on the antagonism between thyroid and parathyroid glands and on the existence of a specific tetany-producing substance in the thymus gland. It is well known that extirpation of the parathyroids in mammals is followed by tetanic convulsions. This led to the assumption that certain tetany-producing toxins are formed in the body, which in normal animals must be either removed or turned into non-toxic substances by the parathyroids. The experiments seem to indicate that these tetany-producing substances are contained in and produced by the thymus gland. On feeding larvæ of certain species of salamanders with the thymus gland of mammals they develop tetany. As long as their own thymus glands are not developed they are able to counter-balance the tetanic action of the thymus substance introduced in their food. When their own thymus becomes active and its secretion is added to the thymus food material, the mechanism of preventing tetany becomes inadequate, and tetany ensues. It is probable that the parathyroids antagonise these results. Anural amphibians, which develop their parathyroids soon after hatching, never show tetany if they are fed on thymus, but in certain species of salamanders, whose parathyroids develop only during metamorphosis, the larvæ invariably have tetanic convulsions upon thymus feeding, while the metamorphosed animals never showed tetany. If the thymus is the organ by whose action tetany is produced, we can understand why tetany in human beings occurs far more frequently in children than in adults, since in the latter the thymus gland is replaced, at least to a great extent, by connective tissue, and experiments are given to show that the effect of the thymus gland in producing tetany is due to a specific tetany toxin produced by, and contained in, the thymus, so that the thymus must be classed amongst the endocrine glands.—Loeb has an elaborate paper on "Amphoteric Colloids."—S. C. Brooks explains "a theory of the mechanism of disinfection, hæmolysis, and similar processes."—Loeb, in another contribution, arrives at "the law controlling the quantity of regeneration in the stem of *Bryophyllum calycinum*." It was found that in a piece of the stem with one basal leaf attached the mass of shoots regenerated at the apex of such a piece of stem increases under equal conditions and in equal time with the mass of the leaf, and is approximately proportional to the mass of the leaf; such influence of leaf-mass on shoot-mass is only intelligible on the assumption

[1] The Journal of General Physiology. Editors: Jacques Loeb and W. J. V. Osterhout. Published bi-monthly. Rockefeller Institute for Medical Research. Vol. I., No. 1, September, 1918. Pp. 1-131. $5 per volume.

that the growth of the regenerating shoot occurs at the expense of material furnished by the basal leaf.—The wide and far-reaching application of the phenomena of "reciprocal innervation" are well illustrated in the paper of A. R. Moore on "Reversal of Reaction by means of Strychnine in Planarians and Starfish." Just as in mammals, strychnine reverses reciprocal inhibition in these animals, but not in medusæ and sea anemonies, which would seem to show that the nervous systems of the starfish and planarian have chemical affinities with the vertebrates which the cœlenterates do not possess.—Walter E. Garrey expounds a wonderfully interesting theme—the profound influence which light exerts upon the activities, movements, and behaviour of most insects, and its deep-seated effects on the neuro-muscular system—under the title "Light and the Muscle Tonus of Insects, the Heliotropic Mechanism." In heliotropic insects the orientation is determined by changes in muscle tension, induced by unequal illumination of the two eyes. The tonus of the muscles depends upon the illumination of the eyes. The effects of blackening both eyes, one eye, or parts thereof are described, and an interesting comparison in function is made of the insect's eye with the otic labyrinth of vertebrates. In the eye there exists an optic mosaic, in which the receptors are arranged in definite patterns, which are mirrored in the groups of muscles involved in the effects of light and shade on these different areas. The muscle tonus seems to vary directly with the intensity of the illumination. Asymmetry of the muscular tone on which circus-movements depend is determined by the difference in illumination of the two eyes. The tonus is markedly decreased in the dark.

The first number did not reach us until long after its date of publication—September, 1918—hence the delay in our welcome to this new and excellent addition to the basal science of medicine. In these over-charged days we are very thankful to have such short, original, crisp, and summarised articles as make up the present number. Too discursive articles defeat their own end and attract few readers.

A CONFERENCE OF MEDICAL BODIES.

THE Council of the British Medical Association, on April 16th, acting upon a suggestion made to it by the Association of Panel Committees, decided to call a Conference of representatives of various medical bodies, with a view to securing common action in medico-political affairs. Invitations were accordingly sent to the Association of Panel Committees, the Medico-Political Union, the Medical Parliamentary Committee, the Medical Women's Federation, the National Medical Union, and the State Medical Service Association. The Conference was held at 429, Strand, on May 6th, with Dr. T. W. H. Garstang in the chair, and, after a discussion which it is hoped will prove profitable, was adjourned to an early date. An agreed report of the proceedings will be published.

THE Prince of Wales presided for the first time on Tuesday at the annual meeting of King Edward's Hospital Fund for London, when the total receipts of the general fund for the year 1918 were stated to exceed £206,000.

THE honorary medical officers of the new American hospital in London have been to a great extent selected, and Mr. Philip Julius Franklin, F.R.C.S., will act as secretary. Mr. Franklin, the originator of the hospital, holds appointments in laryngology and aural surgery at the Middlesex and Evelina Hospitals, and retains his American citizenship.

Dr. Frederick John Smith, who died in retirement at Colyton, Devon, on April 30th, at the age of 62 years, was for 17 years full physician to the London Hospital and a recognised authority on medical jurisprudence. Our obituary notice of him has been unavoidably held over until next week.

THE MEDICAL PARLIAMENTARY COMMITTEE.

AN IMPORTANT CONFERENCE.

AN important conference between the Medical Parliamentary Committee and the representatives of other organisations was held at the Central Hall, Westminster, on Friday last, May 2nd, Sir WATSON CHEYNE, M.P., the Chairman of the Committee, presiding.

Opening Remarks by the Chairman.

In opening the proceedings the Chairman said that they had met to discuss the fact that the medical profession did not get sufficient importance attached to its opinions in regard to legislation and public matters, and to inquire into possible remedy. He did not himself lay any great stress on the *number* of men representing the medical profession in Parliament, but their *quality* was an extremely important matter. Too many representatives might mean too many varying opinions, and the lack of unanimity would prevent proper attention to the medical view. It was of the greatest importance to get representatives in Parliament who would express the views of the medical profession with one voice. The object of the meeting was to bring into uniformity the opinions of the medical profession in order that due weight might be given to them in Parliament. There would necessarily be difference in the opinions of medical men on health as well as on political matters, but Members of Parliament, like the public, did not recognise that medicine is not a fixed science, and that there must be variations in testimony. Moreover, he said, everybody could not know everything. Those in general practice might know little about the arrangements of lunatic asylum work, while other practitioners might have no occasion to become *au fait* with industrial diseases, and the same limitation would apply to tuberculosis work and other branches of medical activity.

If the medical profession was to be properly represented in Parliament there must, in his view, be a central body to collect information, so as to get a collated expression of all branches of the profession. This ought to be a body which was absolutely neutral as regards politics, which could bring together all the various views and at the same time afford facilities for those representing any particular work to meet and discuss those views. That was the object of the Medical Parliamentary Committee, the chief objection taken to which was its alleged origin. "But whatever movement is started," said Sir Watson Cheyne, "it must originate from one or two men, and from the smallest beginnings the greatest results may follow." If such a body as the Medical Parliamentary Committee was formed, it must be remembered that the Members of Parliament were the really important persons to keep in touch with, for it was they to whom the Government would pay attention. It was only through Members of Parliament that effective work could be done and that Ministers could be approached. Sir Watson Cheyne also, speaking for himself, warned the audience against expecting that Members of Parliament would follow instructions—what they wanted was information, not direction as to voting.

The First Resolution Moved.

Dr. ARTHUR LATHAM then moved the first Resolution, which was as follows:—

1. That a permanent Medical Parliamentary Committee be formed for the purpose of: (*a*) supplying information of the trend of expert opinion on health questions to Medical Members of Parliament; (*b*) supplying early information of impending legislation to the constituent bodies; (*c*) facilitating communication between the several bodies affected by the proposed legislation; and (*d*) assisting in increasing medical representation in Parliament.

"The first thing," he said, "which I want to emphasise is the fact that the present Medical Parliamentary Committee, which has called this conference together, is a temporary body and only appointed for the purpose of devising some scheme by which the opinions of the medical profession can be focussed and crystallised, so that the profession may be enabled by increasing Parliamentary representation or by public agitation to convey their opinions on particular questions." "We are not a body," he continued, "which has a mission of a personal kind; we make no attack on any

existing body, we ask for coöperation, and we hope that every institution or committee engaged in medico-political objects will join in the scheme."

Dr. Latham then read the letter summoning the conference,[1] which set out that the temporary Medical Parliamentary Committee was appointed at an open meeting of the medical profession in October, 1918, when a resolution proposed by Dr. Christopher Addison, M.P., was passed unanimously to the following effect: "That in the interest of the national health it is essential that the considered views of the medical profession should be voiced by representative medical men in the House of Commons." "As a result of that resolution," said Dr. Latham, "a temporary body was formed which now submits to this conference of organisations a scheme for the erection of a permanent committee. And in order that the scheme put forward in our resolutions of this afternoon may be properly criticised we have asked you to come to help us to produce unanimity among the medical profession. There are two main questions involved in the resolution to which I am speaking. The first is: Are we agreed that any committee of this kind is required? And the second is, if we are agreed that a body of the sort indicated is required, should it be a new organisation or should it be a committee of some existing organisation?

The Medical Profession and the National Health.

In the near future health questions are bound to loom large in all legislation. The war has taught the Government, what most doctors knew before, that our national health is a shame to the nation, and, moreover, that the country is not getting what medicine could give it if the administration of medicine were regulated on proper lines. For one example, women have now got the vote, and in a large number of circumstances, especially domestic, she will have an interest in health matters. And as woman gets educated in health matters she will make it her business to see to the health of the home. That is only an example. The medical profession must in the next few years take a more prominent part in the national management of health questions, and we require, therefore, efficient machinery for the ascertainment and ventilation of their views. The medical profession consists of men engaged in a number of different types of work—factory, colliery, or other industrial forms of practice, general practice among the poor and the well-to-do, medical officers of health, school doctors, Navy, Army, and Air Force doctors, specialists, consultants, and men engaged in research; and health questions are as complex as any that arise in the management of an army. So that any medico-political questions will be looked at by different sections of the profession at different angles.

We must have some organisation whereby representatives of each one of these sections may be brought to a round table for the expression of their different opinions. We want to supply, as a result of such regular deliberations on topical subjects when they arise, information which will form expert opinion on health questions to all those bodies who are working in the interests of medicine; and we want to let such bodies know early that certain legislation is impending—for the medical profession has made the habit as far as politics is concerned of missing the train. And we want the people with knowledge of particular subjects to be informed when their subject is becoming a public one, so that they may communicate their views. And as diverse opinions will be expressed we want to get the various individuals or bodies concerned to meet and adjust their differences. And in addition to that we want to maintain our medical members in the House of Commons in full knowledge of contemporary medical views, to act, in short, as a liaison committee with the medical profession on the one side and on the other the medical Members of Parliament and the public. We want to have a body which is completely devoted to such ends, and it will need an adequate secretarial staff. Through such a body we shall help Parliament, and in time may initiate as well as assist reforms.

The Common Interests of the Medical Profession and the Community.

Should we set up a new organisation or work through a single existing organisation? One is not satisfied that there is any existing organisation that can afford the time or that possesses the machinery for the purposes described. First, there is no organisation of the profession which represents the whole body. Secondly, nearly all existing bodies have too much work arising out of their special aims to give much time to political developments, while nearly every organisation within the profession is suspected by the public of furthering the interests of the medical profession at the expense of the public. That is fatal to medical progress. If our new body is to achieve success we must get increased political influence, and for that we must secure the sympathy and confidence of the public. When some question is put before the House of Commons—the National Insurance Bill, for instance—the medical profession has no certain opinion, and the Government says, 'What do they represent—30,000 votes, while insurance represents an infinite number more?'

We shall never have political power until we get the public on our side, and that will happen when we approach the public through a body which is recognised by the public as looking after the community rather than after the doctor. And this is the right order, for the interest of the doctor will be cared for if the interests of the community are met; the mistake the medical profession has made in the past is that they have not led the public to understand that the interests of the profession are wrapped up in the interests of the community. In unfair conditions of service you are bound to get a discontented medical profession, and with it bad work, and you are bound to lose any chance of attracting the best brains to the medical profession. The Government and the public will soon realise that medical men must have their interests met for these reasons, but a new organisation is wanted able to express the views of all sections of our profession and those allied with us in maintaining national health. The only practical course is to federate the existing organisations. A federation of existing medical bodies supported by other bodies working with analogous or supplementing aims must be infinitely more powerful than the scattered groups we have at the present time. The health of the individual is the greatest asset the individual has, and in the near future the standard of a country's civilisation will be gauged largely by the standard of health of its individuals. We have, as a profession, a peculiar opportunity at the moment, for the nation is ready to look with sympathy upon all medical reforms. Are we going to seize the opportunity? I have the honour to propose the first resolution in the sure knowledge that we shall have infinite opportunities of doing good work, and that if we work in the interests of the community we are taking the best course to obtain proper treatment of the doctor."

Discussion and Adoption of the First Resolution.

Sir HENRY MORRIS seconded the resolution, and said that, though he intended to give only formal support, so as to save time, he felt impelled to discuss one or two points. He felt certain that such a body as it was proposed that a permanent Medical Parliamentary Committee should be must be of great service in informing medical Members of Parliament as to the considered medical view on health questions, but he would have liked to see the whole reference of such a committee extended so that it should become a bureau of information available to all. He hoped that the Royal Colleges would join the organisation. With reference to the original object of the Medical Parliamentary Committee—namely, that of assisting in increasing medical representation in Parliament, Sir Henry Morris reaffirmed his conviction, which he had previously expressed in an address delivered at the Steinway Hall when he presided over the open meeting of the profession, that the profession had a right to be represented in Parliament directly as a profession, in the same way as universities have direct representation.[2] He concluded by drawing a contrast between the position of medical affairs in Parliament and that enjoyed by the coal industry, where important and representative bodies watched over the interests of all concerned.

Sir THOMAS PARKINSON said the point to be decided was whether the British Medical Association was going to back the Medical Parliamentary Committee or not. If the Association could provide a better method for getting medical views publicly supported they should bring it forward now. Everyone knew that such a committee as was being asked for was necessary. Was the method for its creation the right one?

[1] The letter was published in full in THE LANCET of April 12th, p. 634.

[2] See also THE LANCET, 1919, i., 165.

The direct negative was moved from the hall, but the proposition appeared to obtain no seconder. A rather desultory debate ensued. The limitations of the first part of the resolution were criticised, as all questions affecting the medical profession required light thrown on them, and as medical Members of Parliament were no more ignorant than other members of the community.

The Constitution of a Medical Parliamentary Committee.

Sir THOMAS VERRALL then addressed the meeting in respect of the position of the British Medical Association. He said that the result of the Conference would be reported to the Association, and that he would not be expected to speak for that body as pledging its executive to any course. It was quite impossible for him to avoid pointing out that the British Medical Association did in fact do all the things mentioned in the four clauses of the Resolution. If it was left to the Association to construct a permanent Parliamentary Committee, such as he thought it quite wise there should be, the Association would probably agree that there should be a permanent Parliamentary Committee of some kind. In what way it should be constituted was another matter. It was quite certain that it would be necessary to supply to all Members of Parliament a right view of health questions and it had been the custom of the Association not only to communicate with medical Members of Parliament but with all heads of departments. He would not oppose the formation of a permanent Medical Parliamentary Committee, but he hoped that for the present the question of its construction would be left open. He thought they were on the right lines in having a permanent committee, but he was not sure that the Association would support its construction on the particular lines laid down. In times past all the bodies had put their views before the Association, containing 23,000 members. If it was left to the British Medical Association he thought it would be possible to construct a body which would enjoy general confidence. The Association had not recently been considered ideally representative of the profession, but he suggested that we lived and learned and that it would be quite possible to reconstruct or modify the Association and incorporate fresh views when needed. The Association believed itself to be a democratic body and, when modified to include a thorough representation of opinion if it did not already do so, it would be possible for the Association to construct a Parliamentary Committee. On behalf of the Association he expressed the opinion that a Permanent Medical Parliamentary Committee was necessary, but the Association was already doing these things, and he could not say what their course in the existing position would be.

Dr. E. H. M. STANCOMB said that to assist in increasing medical representation in Parliament was the most important work that the Committee could do. Miners, weavers, and licensed victuallers have numbers of such representatives, though their industries are not vital to the health of the nation, while the value to the notion of medicine is paramount. He stated that medical men did not reach Parliament as medical men, but three medical Members of Parliament present at the Conference having said that they had been elected as medical men Dr. Stancomb modified his view.

After some discussion it was decided that a Medical Parliamentary Committee should be formed and the first Resolution was passed, with amendment—the first clause reading, "supplying early information of the trend of opinion on health questions."

The Second Resolution.

Dr. C. A. BUTTAR moved the second resolution:—

2. That the Committee consist of: (*a*) A representative or representatives of any society or association of those engaged in medical or dental practice having as its objective, or taking an interest in, medico-political activity; (*b*) two representatives appointed by the nursing profession; (*c*) a representative of midwives; (*d*) a representative appointed by the Pharmaceutical Society; (*e*) a representative appointed by the British Hospitals Association; (*f*) the editor of: (i.) *The British Medical Journal*, (ii.) *The Lancet*, (iii.) *The Medical Press*, (iv.) *The Medical World*, (v.) *The Medical Times*; (*g*) all medical Members of Parliament; (*h*) members, not exceeding 20 per cent. of the Committee, coöpted by the Committee itself; (*i*) directly elected representatives of the whole medical profession, to be elected immediately the Committee's financial position warrants the necessary expenditure.

He said:—"Now that the meeting has approved the formation of a Permanent Medical Parliamentary Committee the next step will be to suggest the lines on which the Committee should be constituted. The provisional Medical Parliamentary Committee is of opinion that the new body should consist mainly of representatives of the various bodies and associations in the profession, and not of direct representatives obtained by direct election on a territorial or other basis. For, first, there are few medical men not associated with one or more medical societies or bodies, and, by obtaining representatives from those bodies who are willing to assist, a representative body of the profession in the country will be obtained. Further, by this method of forming the Committee there is less likelihood of infringing the prerogatives of the various bodies concerned or of interfering with their control over their own members. The third reason for the proposed method of constitution is that it is far the most economical one. The second general principle influencing the provisional Committee in its suggestions is the inclusion of bodies other than those of purely medical men. There is only one great health question, and to leave out of reckoning such bodies as dental surgeons, chemists, hospital managers, and nurses would be a great mistake. The third general principle is the desire to link up the medical profession outside Parliament with the profession inside Parliament, for the medical Members of Parliament have already their own medical committee. The coöpting of a percentage of members on to the committee gives a chance of securing persons specially qualified to help.

Discussion and Adoption of the Second Resolution.

Dr. JANE WALKER said that when this Committee was started its idea was to increase the representation of medical men in Parliament, and that it should be composed of medical practitioners only. But they found that it was more to the advantage of the scheme and the health of the nation that the scope of the Committee should be enlarged, enabling all other bodies concerned with the health of the community to supply and be supplied with information. Up to the present and within the last few years medical practitioners had not dealt with politics at all, and a good many of her colleagues rather looked askance at the people who would look at politics as part of the work of medicine. Medical work had become so complex that the profession had begun to take an interest in everything outside. Nursing formed an integral and definite part of the profession, and she thought that both nurses and midwives would make very excellent Members of Parliament.

Mrs. BEDFORD FENWICK welcomed the inclusion of nurses on the Committee.

An amendment to the effect that the Permanent Medical Parliamentary Committee should be composed of medical practitioners only, and that the subcommittees of this Committee should be composed of ancillary bodies, was lost.

In reply to a statement that there did not seem to be any definite provision for the inclusion of general practitioners on the Committee, Dr. LATHAM said that clause (*a*) of the second Resolution would bring in a good number of general practitioners.

Mr. E. B. TURNER said that if the Committee were thoroughly established it would tend to unity, but he wished to know where the necessary financial support was coming from.

Dr. LATHAM said that as far as could be estimated if they had a representative in the lobby of the House of Commons and a really live secretary and offices they would require something between £1500 and £2000 a year. It was possible that various associations that join would find some money and individuals some money. "I have no doubt," he added, "that when our body is formed we can find the necessary money for the first two or three months, and if the body is to stand or fall by its achievements, and if we do anything, as I hope we shall, we shall get the money both from the public and the profession."

Dr. FARQUHARSON said he would like to see clauses (*f*) and (*g*) eliminated.

Sir WATSON CHEYNE, referring to Dr. Farquharson's objection to the confusion of the voting power of individuals and associations, said that it was not a question of voting power at all, but rather of getting the opinions of every shade of the profession.

Resolution 2 was then passed with the substitution of the words "of registered dental or medical practitioners"

in place of the words "those engaged in medical or dental practice" in clause (*a*), the addition of the words "of whom not more than a quarter shall be engaged in consultative medical practice" in clause (*h*), and the addition of a member of the Housing and Town-Planning Association to the societies represented.

The Remaining Resolutions.

Resolutions 3 to 7 were put from the chair and carried. They ran as follows:—

3. That the Committee meet at least twice a year.
4. That the Committee appoint an Executive Committee consisting of not more than 20 members, of whom not more than a quarter should be engaged in consulting medical practice.
5. That the Executive Committee meet at least once a month.
6. That the Executive Committee have power to appoint subcommittees.
7. That a Committee be appointed to take such steps as may be necessary to carry out the decisions of this Conference.

It was decided by resolution that the giving of effect to these resolutions, and the drafting of a financial scheme should be left to the existing provisional Committee, whose temporary address is 20, Hanover-square, London, W. 1. Dr. A. Latham and Dr. C. Buttar will continue to act as honorary secretaries to the provisional Committee.

MATERNITY AND CHILD WELFARE.

Child Welfare in New Jersey.

IN the bulletin of the Department of Health of the State of New Jersey for January, 1919, Dr. Julius Levy, consultant and supervising expert of the Bureau of Child Hygiene, reviews the causes of infant mortality and describes the steps which have been taken by the State Child Hygiene Bureau to combat this evil. Included in the report are two articles by Dr. Levy on "The Importance of the Pre-School Period to the School Child" and "Maternal Nursing Considered from its Evolutionary and Biological Aspects," which has been inserted in the report for the benefit of the nurses throughout the State. In a foreword Dr. Levy points out that the problem is one which requires for efficient handling a high degree of coördination of the social forces.

"Recognising this and desiring to make it clear to every intelligent citizen of the State, the Bureau of Child Hygiene will seek to coöperate with all agencies of the State, whether public or private, which are looking toward the welfare of children, so that working together in a thoroughly organised and homogeneous group, these beneficent forces will bring to bear upon each situation which requires attention the most scientific treatment known, and perform their work with the least possible loss of energy and money."

The Bureau is divided into four divisions—the Division of Nursing and Consultation Stations, the Division of Midwifery, the Division of Children's Institutions and the Boarding Out of Babies, and the Division of Education and Extension.

"The aim of the first division is to dispel ignorance. It works through teachers of infant hygiene, who teach the expectant mothers the importance of medical examinations, particularly if they are to be attended by a midwife, arrange for hospital or medical care for abnormal cases, and give the prenatal care which prevents many of the accidents and deaths of pregnancy and childbirth. The nurse continues her supervision of the mother, and visits her as soon as the birth record of the baby has been received, and it is hoped that by her help unnecessary weaning may be prevented, cracked nipples cured, caked breasts or breast abscesses prevented, and immature, premature, or debilitated babies saved. The nurses have been given as their first article of faith that 99½ per cent. of all the babies can be breast-fed entirely for one month; 88 per cent. entirely for six months; and another 8 per cent., at least partially, for six months. The nurses are required to discover and report all conditions which seem to interfere with successful maternal nursing. The Bureau will then use all available resources in each community to remedy these conditions, and where the necessary civic or municipal organisation does not exist it will help by proper coöperation and coördination to establish such an organisation. Poverty, factory employment of women, cruelty, bad housing, insanitary conditions, unreported births, unreported or uncontrolled contagious diseases will come under the purview of the nurse.

The second division is concerned with the question of obstetrical facilities and care—hospital, medical and nursing—throughout the State, and the supervision of midwives.

The third division has for its principal function the keeping together of babies and mothers that society now permits, sometimes encourages, to separate. It will deal with the unmarried mother and her infant, and try to work out in each county a plan that will place these mothers under care as soon as they are admitted to a hospital, so that steps may be taken to safeguard the health and life of the baby. It will deal with the boarding out of infants, eliminate baby farms, and supervise foster homes for babies. Day nurseries, children's dispensaries, babies' hospitals, and infant asylums are placed in this division, so as to ensure that a proper standard of sanitation and hygiene are maintained.

The fourth division, that of education and extension, will use every avenue to bring home to every mother and father, every boy and girl, every citizen and official, every organisation, the message that the family is the bulwark of society and the child the purpose of the family."

"Movies," lectures, exhibits, the pulpit, the press, and pamphlets are to be used for teaching purposes and to bring before municipalities and legislatures the fact that every dollar spent on preventive child hygiene work returns fourfold in increased healthfulness, vigour, and efficiency.

The Importance of the Pre-school Period to the School Child.

In this article Dr. Levy points out that most of the time and effort of the Departments of Medical Inspection is spent upon the detection and removal of existing defects and the treatment of diseased conditions which already have interfered with normal growth and development, and could have been prevented by effective child hygiene work. The years of most rapid growth and change are the crucial periods in the life of any organism, and it is in the pre-school period that the basis is laid for health and efficiency, for normal mental and physical life, the first year from this point of view being the most important to the school child. The Newark Board of Health, through its child hygiene division, has extended its supervision to the children of the pre-school period, and shortly expects to arrange for an annual or semi-annual examination of every child.

Some figures are given from the available data collected by the school hygiene authorities in Newark, which show a large proportion of children who are subnormal or abnormal in their growth and development.

"In the school year 1917–18, 21,263 children were examined, and of this number only 6243 were reported to be normal, and 15,020 to be subnormal, or approximately 75 per cent. of the total number; 4 per cent. were found to be suffering from malnutrition, 5 per cent. from enlarged cervical glands, 15 per cent. with defective vision, 3½ per cent. with defective nasal breathing, 5½ per cent. with defective teeth, 8½ per cent. with enlarged tonsils, 1¼ per cent. with impediment of speech."

Maternal Nursing Considered from its Evolutionary and Biological Aspects.

Dr. Levy here directs attention to the increasing prevalence of artificial feeding; describes the differences between human and cow's milk; discusses the various reasons, physiological and psychological, why breast-feeding is not carried out; and describes the means which should be taken in order successfully to establish breast-feeding and prevent the abnormal symptoms which develop when nursing is improperly performed. He strongly disagrees with the opinion which is held by many, that the ability of women to nurse their babies is less than it used to be. In support of this contention he quotes the figures of Dr. Schwartz, who in New York followed the nursing of 1500 women and found that 96 per cent. nursed entirely to one month, 89 per cent. nursed entirely three months, and 77 per cent. nursed entirely six months. In a series of 509 mothers he himself had found that 95 per cent. nursed one month, 81 per cent. nursed three months, and 79 per cent. nursed six months.

"In the later and more highly developed work of the Child Hygiene Division it has been so rare to find a woman who cannot nurse her baby that when a nurse recently reported such a case we requested a report from another nurse before we were willing to believe it. She reported that the woman had milk in her breast but refused to nurse."

In some of the counties of the State of New Jersey the average infant mortality rate for the years 1916–17 has been over 110 per 1000, in others it has been under 90. "New Jersey must save 1000 babies to bring the rate for the entire State to 90."

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Ireland and Public Health Reconstruction.

THERE is no part of the United Kingdom which needs its public health organisation and administration so thoroughly reformed and re-created as Ireland. It is therefore a great pity that Clause X. of the present Ministry of Health Bill, which brings Ireland under its purview, has been so drawn up as to satisfy no section of the Irish medical profession. By that clause, a council is to be established—called the Irish Public Health Council—for the purpose of giving advice and assistance, and making proposals to the Chief Secretary (who is the Minister of Health for Ireland) in connexion with his powers and duties under the Act.

Now, to the constitution of this council the medical profession in Ireland strongly object, because, first, those who will have the practical working of any measure of public health to be set up in the future—the registered medical practitioners of Ireland—have a numerical representation of only three out of a total of 17 members, while there will be eight permanent officials, all resident in Dublin, and six other persons representative of various other bodies, such, probably, as the Irish Industrial Commissioners, Irish Insurance Committees, the Women's National Health Association of Ireland, the veterinary medical societies, the dental associations, the Poor-law bodies, the county councils of Ireland, the hospitals, asylums, and deaf and dumb and blind schools. In addition, the medical profession is not given even the power of electing its own representatives, but they are to be all Crown nominees. It is a curious comment on such legislation that in 1918, when the Central Midwives (Ireland) Act was passed, a Board under that measure was set up consisting of 11 members, four of whom were doctors, and that they were left to be elected by their fellow practitioners. Nay, more, on April 10th of this year, a Standing Committee of the House of Commons accepted an amendment proposed by Sir Kingsley Wood (in the absence of his chief, Dr. Addison, M.P.), appointing, in connexion with the Nurses' Registration Bill, a General Nursing Council for the United Kingdom of 18 women nurses (8 resident in England, 2 in Wales, 4 in Scotland, and 4 in Ireland), all of whom are to be elected by various nursing societies and associations in the United Kingdom.

Who is responsible for such curious legislation, which is little short of an insult to the medical practitioners of Ireland? In the *Times* of March 28th the Attorney-General for Ireland said Clause X. was "drafted to meet, as far as possible, the strong representations of Irish Members, and to make the Health Council thoroughly effective in bringing about a real reform in public health in Ireland." The Irish Members apparently never thought it worth while (as the Irish Government now knows) to consult the medical profession on the matter, and, unless the clause is altered at this late stage there is great risk that the profession will not take that helpful interest in the matter they would otherwise have done. They feel that in such a constituted Public Health Council they will have no proper numerical weight. It is interesting to note that, in connexion with the separate Health Bill for Scotland, the medical profession there are demanding at least a third of the representation on the Scottish Board of Health, with the right to elect them; they object also to any of their representatives being obliged to hold a certificate in sanitary science, public health, or State medicine as being unnecessary and as having the tendency to exclude valuable and helpful candidates, and they claim that no measure for Scotland of reform of the whole public health system should be enacted until the members of the medical profession have had a right to consider it.

The Chief Secretary for Ireland and the Medical Profession.

During his recent visit to Belfast the Chief Secretary for Ireland received an important deputation from the medical profession on May 1st at the City Hall. Mr. R. J. Johnstone, who presided at the large meeting held on April 9th of the doctors of Belfast, at which the deputation was appointed, introduced the following members:—

Professor Sir John Byers, Dr. James Colville (president of the Ulster Medical Society), Dr. Robert Campbell (president of the Ulster branch of the British Medical Association), Mr. W. Burns, Dr. M. F. Cahill, Dr. John Campbell (chairman of the Convocation of Queen's University), Dr. R. T. Crymble, Dr. John R. Davison, Dr. David Gray, Dr. R. W. Leslie (senator Queen's University), Dr. C. G. Lowry, Lieutenant-Colonel A. B. Mitchell, Dr. J. L. Rentoul, Dr. Gardner Robb, Colonel T. Sinclair (registrar, and representative on the General Medical Council of Queen's University), Mr. W. McLorinan, Dr. Boyd (Hillsborough), Mr. T. Bennett (Bangor), and Dr. R. Henry (Comber).

The two speakers appointed by the deputation—Sir John Byers and Dr. Robb—addressed the Chief Secretary very fully on matters concerning the Ministry of Health Bill as it refers to Ireland. Dr. Henry, on behalf of the county Down doctors, endorsed their views, to which Colonel Mitchell made some further suggestions. Those present at the interview were greatly pleased with the friendly way in which they were received by the Chief Secretary, who seemed impressed with the representative character of the deputation, and with the importance of the views they put forward. He discussed very fully the whole situation, and spoke in a sympathetic way. Before leaving Dr. Campbell thanked Mr. Ian Macpherson, on behalf of all present, for his courteous reception. The deputation met in the parlour of the Lord Mayor of Belfast, who was present when they were formally received.

May 6th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

New Science Laboratories at Edinburgh.

THE scheme proposed before the war for erecting new science laboratories for Edinburgh University has now been extended, and an extensive site has been acquired on the southern outskirts of the city, 15 minutes' walk from the University. The new chemical laboratory will be erected on plans prepared under the direction of Professor James Walker, and work will be carried on under the new professorship of chemistry in relation to medicine by Professor G. Barger. Other laboratories will also be erected, but financial assistance will be required. While Edinburgh University has lost no less than £70,000 in fees owing to the war, it is stated that the number of students who are entering the University is greater than at any pre-war period.

The Scottish Western Asylums Research Institute.

At the annual meeting of the Scottish Western Asylums Research Institute held recently in Glasgow Dr. Landel R. Oswald stated that he had received from an anonymous donor a capital sum sufficient to give an income of £250 per annum to endow a scholarship for research work in mental affections. The Research Institute has been invited to appoint two trustees to coöperate with others in administering this fund. The scholarship will be founded on the lines of the Beit scholarships, open to research students throughout Scotland. It is hoped that the Institute itself may soon be in full working again, and the executive committee has been instructed to secure a director at a salary not exceeding £600 per annum. Information regarding this post may be obtained from Dr. James H. Macdonald, Hawkhead Asylum, Crookston, Cardonald, Glasgow.

Resettlement of Scottish Nurses.

The Minister of Labour has appointed a subcommittee for Scotland, of the Nurses' Resettlement and Demobilisation Committee, to deal with the resettlement of Scottish nurses in civil life, with special reference to those who desire to find post-war employment or to undertake some form of training. The subcommittee will also control a register of Scottish nurses who desire work in Scotland, which will be kept at the office of the Employment Department, Ministry of Labour, 112, George-street, Edinburgh, to which all inquiries should be addressed. The membership of the subcommittee includes representatives of the Local Government Board, the Scottish Education Department, the Scottish branch of the British Red Cross Society, the Scottish Matrons' Association, Queen Victoria's Jubilee Nurses' Institute, the College of Nurses, Edinburgh, and the National Health Insurance. The subcommittee has on its register women with nursing experience who are seeking posts as nurse-masseuses, secretaries, book-keepers, and nurse-chauffeurs.

Venereal Treatment Centres in Glasgow.

On May 1st Section I. of the Venereal Diseases Act, 1917, became applicable to Glasgow. Dr. A. K. Chalmers, medical officer of health to the city, in circulating the Order of the Local Government Board for Scotland, indicates that treatment centres as follow are included in the corporation scheme for the treatment of these diseases:—

Males.—Royal Infirmary Dispensary: Mon., Wed., and Fri., at 1.30 P.M. Western Infirmary Dispensary: Wed. and Sat., at 11 A.M. (syphilis only). Victoria Infirmary Dispensary: Wed. and Sat., at 9.30 A.M. (syphilis only).

Females.—Hospital for Women (formerly called Lock Hospital): Daily, at 2 P.M. Western Infirmary Dispensary: Fri., at 11 A.M. (syphilis only). Victoria Infirmary Dispensary: Wed. and Sat., at 9.30 A.M. (syphilis only). Baird-street Reception House: Tues. and Sat., at 9.30 A.M.

Both sexes will be advised as to treatment at Bellahouston Dispensary, Morrison-street, on Mon., Tues., Thurs., and Fri., at 2 P.M.

Training Scheme for Red Cross Workers.

The War Executive of the Scottish Branch of the Red Cross Society have approved of a scheme whereby their workers who have rendered services during the war may be trained in various branches of women's work, and it is proposed to set aside a considerable sum of money for the purpose. The kind of training offered will include that for—

(1) Fully trained nurses, district and village nurses, and X ray assistants; (2) midwifery; (3) health visitors for child welfare; (4) hospital almoners; (5) massage, electricity, and Swedish remedial exercises; (6) pharmacy; (7) domestic science in connexion with hospital work; (8) first-aid, home nursing, and hygiene.

Facilities for this training are intended primarily for Red Cross workers who have served in naval, military, and Red Cross hospitals during the war, but applications from other Red Cross workers, Q.A.I.M.N.S. and Reserve, the Q.A.R.N.N.S. and Reserve, the T.F.N.S., and nurses who have worked in civil hospitals admitting sailors and soldiers will be entertained.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Medical Services Committee.

THE Secretary of State recently asked the Government of India to examine the question of the future organisation of the medical services in India to provide for military requirements. The subject has been referred to a committee composed as follows:—

President.—Sir Verney Lovett, K.C.S.I., I.C.S., Member, Board of Revenue, United Provinces.

Members.—Major-General G. Cree, C.B., C.M.G., A.M.S., Deputy Director of Medical Services, 8th (Lucknow) Division. Major-General P. Hehir, C.B., C.M.G., C.I.E., I.M.S., Deputy Director of Medical Services, Northern Command. Major-General H. Hendley, K.H.S., I.M.S., Deputy Director, Medical Services, 4th (Quetta) Division. Major-General G. G. Giffard, C.S.I., I.M.S., Surgeon-General with the Government of Madras. Mr. S. R. Hignell, C.I.E., I.C.S., Deputy Secretary, Home Department. Lieutenant-Colonel A. Sharp, C.M.G., Additional Deputy Secretary, Army Department. Lieutenant-Colonel G. B. A. Rind, Assistant Adjutant-General, Adjutant-General's Branch, Army Headquarters.

Secretary.—Major A. A. McNeight, I.M.S., Deputy Assistant Director of Medical Services, Medical Branch, Army Headquarters.

In order to provide for the representation of Indian opinion, Colonel H. E. Banatvala, C.S.I., K.H.S., Inspector-General, Civil Hospitals and Prisons in Assam; Lieutenant-Colonel Bhola Nauth, C.I.E., I.M.S.; and Sir T. B. Nariman, a private practitioner of Bombay, have been coöpted for duty on the committee.

Sanitation in Lahore.

Sanitary measures are being actively pushed forward at Lahore. Series of lectures on mothercraft and a baby show are amongst the latest efforts to stir up interest amongst the Indian community. At the last-named function no less than 1500 babies were shown.

Small-pox at Dacca.

Small-pox has appeared in epidemic form at Dacca. According to the estimate of the local municipality to hand by the last mail the number of cases then in the city was 600 to 700. The mortality is not high.

Possible Recrudescence of Influenza.

The Sanitary Commissioner for Bengal has written a letter to the secretary of the Bengal Chamber of Commerce regarding the outbreak of influenza in Bengal, in which he brings to notice the possibility of a further recrudescence of influenza. He concludes:—

"I would suggest that on the first sign of the disease reappearing precautionary measures should be adopted. In this connexion I may mention that the Sitaram Coal Company, who use oil of cinnamon in two-drop doses three times a day amongst their staff of 282 men during the last epidemic, obtained very satisfactory results, as not a single case of the disease occurred among those using the remedy. It may be further pointed out that as influenza is exceedingly contagious, inasmuch as those being brought into near contact with the sputum, nasal discharges, or even breath of those sick of the disease, are very liable to contract the infection, people should be instructed to segregate patients as far as possible from other members of the family, and attendants on patients should wear pads or masks of cotton-wool and gauze tissue, covering the mouth and nose in order to protect themselves from infection."

The Lady Hardinge Medical College.

The annual prize-giving was held recently, when a report showing the satisfactory progress of both the college and hospital was read by Dr. Charlotte L. Houlton, the acting principal, in the absence of Dr. Kate A. Platt, who is on furlough.

NEW YORK.

(FROM AN OCCASIONAL CORRESPONDENT.)

Hospitals for Disabled Men.

THE War Insurance Bureau of the United States charged with the duty of caring for disabled soldiers has recently announced its programme. There are 20 hospitals with a capacity of 1500 beds already in use and seven camp hospitals have been transferred to the Treasury Department by the War Department. By the provisions of the War Risk Insurance Act all soldiers who are disabled 10 per cent. as the result of military service are entitled to compensation and to treatment. Any man disabled in the service and discharged may apply for treatment to the nearest public health service station. Men who, after discharge, develop physical disabilities attributable to military service are also entitled to treatment. It is said that the Bureau of War Risk Insurance may be called upon to care for more than 25,000 men discharged on account of tuberculous tendencies.

National Campaign against Influenza.

A Health Committee, under the chairmanship of Dr. Lee K. Frankel, President of the American Health Association, has been organised by the Community Councils for National Defence, to establish preventive measures against influenza. Dr. Frankel, speaking recently before the Bankers' Club, pointed out that after the influenza epidemic of 1891 the death-rate was abnormally high for five years, and that unless rigorous measures were now taken the present epidemic would bring in its wake the same high mortality. Dr. R. S. Copeland, Commissioner of the New York City Department of Health, drew attention to the need for bringing health questions before the people. The membership of the Health Committee includes practically all the medical men of New York who are prominent in the sphere of preventive medicine.

The Drug Situation in New York.

On April 8th the Federal Government, for the first time, made use of the broad powers conferred by the Harrison Antinarcotic Law and caused the arrest of six medical men and four druggists, and took into custody 200 drug addicts. Although it has been stated on several occasions that cocaine, heroin, morphine, and other narcotics were being largely used in New York the Federal authorities stayed their hands until it had been definitely decided how much power was vested in the Antinarcotic Law. Towards the end of February, the United States Supreme Court promulgated a decision which interpreted the Harrison law so as to give the officers charged with the enforcement thereof almost limitless authority, and it is in accordance with this decision the above arrests were made. Agents of the U.S. Bureau of Internal Revenue stated that

during the past year 1,500,000 prescriptions for the illicit procuring of narcotics had been issued and filed. It has been also ascertained that the drug principally dispensed is heroin, which is retailed at the rate of $60 (£12) to $75 an ounce.

At a meeting of the Physicians' Protective Association held on April 10th a resolution was introduced by Dr. John P. Davin, and carried unanimously, denouncing the action of the Board of Health and the Federal agents, and contending that the section of the Harrison Antinarcotic Law, which demands that physicians shall reduce the amount of drugs administered, was "a fallacy." The resolution stated that the physicians' organisation would uphold the right of practitioners to prescribe for the disease of drug addiction, unhampered by a rule of treatment laid down by any court of law.

In Aid of the Tuberculous Poor.

A Bill has been introduced into the New York State Legislature to provide State and county aid for poor persons suffering from tuberculosis. The introducer of the Bill, Senator Julius Miller, gives statistics from the New York City Health Department showing that there were on Jan. 1st, 1919, 32,048 cases of tuberculosis in New York city, with hospital or institutional accommodation for only about 5000. The Bill provides that the expense incurred in the care of indigent tuberculous patients shall be borne one-third by the State, one-third by the county, and one-third either by the individual himself or be obtained from some private source. Local health authorities are required to make a survey of their districts and to forward to the State Department of Health a list of private institutions, boarding houses, or dwellings in their districts in which tuberculous persons may be received and suitably cared for. The State Department of Health has the right to fix uniform rates for board and lodging in authorised places. The scheme provides only for patients who are not bedridden.

Medical and Surgical Developments of the War.

The Navy Department of the Bureau of Medicine and Surgery of the United States has recently published a special number of the *Medical Bulletin*, being a report on medical and surgical developments of the war by Dr. William Seaman Bainbridge, Lieutenant-Commander Medical Corps, U.S. Naval Reserve Force. The surgery of wounds in the present war is here grouped under approximate chronological headings from the period of ordinary antiseptic agents to the period of primary wound suture, immediate or delayed. All the methods are discussed and a considerable amount of attention is paid to the question of wound suture.

During the summer and autumn of 1915 Commander Bainbridge made a hospital Red Cross and sanitary survey through Holland, Germany, and Switzerland. Late in 1915 he found the ambulance and hospital organisation in Germany extremely efficient, a feature of German hospitals which greatly impressed him being the excellence of physio-therapeutic methods. Although irrigation with dilute antiseptic solutions was employed by German surgeons, opinions varied widely as to the value of antiseptic agents.

A large amount of space in the report is given to a consideration of the manner in which Dr. C. Willems, of the Belgian Military Hospital at Hoogstade, dealt with joint lesions. Instead of the method of prolonged immobilisation which had been generally adopted he advocated and practised the principle of immediate active mobilisation of the joint.

The various kinds of apparatus devised by French, British, and American surgeons are described and illustrated. That part of the report dealing with plastic surgery is particularly worthy of commendation, and the illustrations depicting the progress of the plastic work are exceptionally good.

Through the courtesy of Sir John Goodwin, Director-General of the British Army Medical Service, Commander Bainbridge was granted special facilities for observing every step in the history of the wounded man from the moment of receiving first aid until the time when he was either returned to military duty or discharged as unfit for further service. The military orthopædic hospitals of Great Britain are described at length, as are the special hospitals scattered through England and Wales and Scotland.

Correspondence.

"Audi alteram partem."

PORTRAIT OF SIR CLIFFORD ALLBUTT.

To the Editor of THE LANCET.

SIR,—Sir Clifford Allbutt has accepted an invitation to allow the profession to present to him a portrait of himself painted by an eminent artist. The Council of the British Medical Association has taken the initiative in the matter because Sir Clifford Allbutt has been President of the Association during the years of the war, and will preside over its annual meeting in Cambridge next year. The esteem due to Sir Clifford Allbutt's attainments and the warm affection inspired by his character are such that very many, both within and without the Association, will desire to share in this tribute to one whose career has reflected so much honour on medicine in England. This desire will not be limited to his many pupils, first in Leeds and afterwards in Cambridge, nor to the grateful members of the Association over which he has presided during the past five years.

Subscriptions are invited from all members of the profession. The amount is limited to one guinea, and the treasurer of the British Medical Association, 429, Strand, London, W.C. 2, is now prepared to receive subscriptions of one guinea or less. Cheques and postal orders should be made payable to the "Sir Clifford Allbutt Presentation Fund," and crossed London County, Westminster, and Parr's Bank.—We are, Sir, yours faithfully,

J. A. MACDONALD, Chairman of Council.
T. W. H. GARSTANG, Chairman of Representative Meeting.
G. E. HASLIP, Treasurer.

British Medical Association, 429, Strand, W.C.

IMMUNO-TRANSFUSION.

To the Editor of THE LANCET.

SIR,—In septic cases which are not recovering, in spite of the fact that it is clear from the temperature, rigors, &c., that the patient's powers of resistance are being fully exploited, ordinary vaccine treatment is useless. In such circumstances I suggest that a healthy individual should be immunised against the germ involved by vaccine inoculation, and that his immunised blood should be transfused into the patient. It seems to me that this method would be simpler and more effective than the transfusion of blood immunised *in vitro*, as suggested by Sir Almroth Wright, since bacteriological laboratory processes would be unnecessary, and the fixed tissue cells, as well as the blood corpuscles, would be called upon to contribute towards the desired result. I am, Sir, yours faithfully,

South Eaton-place, S.W., May 3rd, 1919. THOMAS LUMSDEN.

HILUS TUBERCULOSIS IN CHILDREN AND ADULTS.

To the Editor of THE LANCET.

SIR,—The letter of Dr. Mary Williams in THE LANCET of April 19th upon the subject of hilus tuberculosis raises questions upon which there may be a difference of opinion. Dr. Williams has endeavoured clinically—as we all in varying degrees endeavour—by signs, to be detected by the eye, ear, and touch, to discover disease and interpret the nature of disease which may lie below. It is part of what we may call the pathos of medicine that we cannot, in many instances, know the truth concerning those we desire to benefit until they are dead. Dr. Mary Williams has been reasoning from clinical evidence without opportunities for checking her conclusions by post-mortem examination, and her conclusions are consequently open to question.

It is 27 years since I undertook work as registrar and pathologist to the Royal Waterloo Hospital. From then—with the exception of two years—I have had clinical experience of children in children's hospitals, and during 14 years of the time I have also had experience of work in the post-mortem room. Altogether I have made about 2500 examinations there. It may be added that the method of removing all the thoracic organs with the trachea and larynx attached

—as I learnt at Guy's Hospital—enables the pathologist to carefully examine, as a routine method, the mediastina and the roots of the lungs. From the first days of my post-mortem work I was aware of the importance of tuberculous infection of bronchial and mediastinal glands, and I believe that I am right in saying that there is a specimen in the Royal College of Surgeons Museum, which I gave 26 or 27 years ago, showing the bursting of a suppurating caseous bronchial gland into a bronchus. For many years, therefore, I have been interested in the various localisations of tuberculous infection, and have often spoken and written upon details connected with the subject. Even such experience, however, as I have had does not enable one to speak dogmatically. I feel, as I have long felt, that there is need for extended observations of several morbid anatomists. Yet lengthy experience gives one sufficient ground for forming a definite opinion. My experience leads me to maintain that important though the bronchial glands are as centres from which *acute* and *subacute* invasion of the lung takes place, if *chronic* hilus tuberculosis occurs in children it must be very rare.

There is one point that I always endeavour to impress upon those dealing with children. It is that chronic disease of the lung in children is almost invariably non-tuberculous. Even when loud bronchial breathing and bronchophony are present over an upper lobe the disease is, in the great majority of instances, non-tuberculous. The whole lobe may be converted into a mass of dilated bronchial tubes, while the lower lobe remains virtually unaffected. Another point which I also give, not as a dogmatic statement but as a useful guide, is that, speaking generally, one may say that a child, if it acquires tuberculous infection of the lungs, is not likely to live more months than it has already lived years. Occasionally tuberculosis may be grafted upon chronic non-tuberculous disease of the lung, and very rarely one may find evidence of fibrosis in primary tuberculous infection of the lung, but almost invariably in children the disease runs an acute or subacute course.

As age advances the power of resistance to tuberculosis increases. The tubercle bacillus eventually entirely loses its power to attack lymphatic glands, bones, or joints, and when it seizes upon the lungs it meets with greater difficulties in extending its ravages in the adult than in the child. Those who expect to find in children a chronic tuberculous disease of the lungs similar to that seen in adults ignore the varying susceptibility to the disease at different periods of life.

It may be added that the difficulty in acquiring more definite knowledge concerning the vexed question of tuberculosis of the lungs in school children is due, no doubt, to the fact that so few morbid anatomists have much experience of examination of children after death at this age. The great majority of post-mortem examinations occur at an earlier and later period of life. The idea has arisen in my mind—it may be merely an idea—whether there may not be a period of comparative immunity to tuberculous disease of the lungs, between the ages of five or six years, and until just after puberty. The reason for such immunity would be that the liability to infection through the bronchial glands is diminishing and the chest has not yet fully acquired the conformation of that of the adult, with its effect upon the character of respiration. The point of *air stasis* where the tubercle bacilli settle in the adult near the apex of the lung may not yet be a feature of normal breathing, and render the child susceptible to infection through the air.

However that may be, so apparently elementary a subject as the nature and frequency of tuberculous lesions of the lungs in children needs the attention of the morbid anatomist. It may be added that I feel compelled to remark that, personally, I doubt the existence of hilus tuberculosis in the adult. Calcareous bronchial glands, a sequel of disease in childhood, may certainly be present in the adult, but chronic hilus tuberculosis, if present, must be rare. Radiologists need, it seems to me, not infrequently to compare their skiagrams with the skiagrams of normal lungs, since the mass of normal structures at the root of the lung is apt to lead to error. My experience of death from tuberculous disease of the lung in the adult may not be sufficient to justify me in expressing the above view regarding hilus tuberculosis. The clinician, however, who has been a morbid anatomist always assumes an attitude of doubt until he is convinced by what he considers to be the only reliable evidence. I am, Sir, yours faithfully,

Norwich, April 28th, 1919. THEODORE FISHER.

THE LOWER UTERINE SEGMENT AND UTERINE TENDONS.

To the Editor of THE LANCET.

SIR,—The letter of Professor Hastings Tweedy in THE LANCET of April 26th entails a reply from me, even though it be but to reciprocate the regret which he expresses at the divergence of our views. But the more Professor Tweedy defines his position, the greater does the gulf between our conceptions become.

Professor Tweedy's conception of the pelvic floor is quite different from mine. For him the pelvic floor consists of "bundles of fibrous tissue and smooth muscle mingled together," and comprises a tissue which "radiates from the uterus at the level of the os internum," and "is attached to the bony wall of the pelvis." "It forms," he says, "a fibro-muscular diaphragm or floor for the pelvis, stronger in some parts than in others, and either kept in tension or relaxed according as the os internum is contracted or open." For me the pelvic floor is the musculature which occludes the bony outlet of the pelvis, and in structure as in function is comparable with the thoracic diaphragm above and the abdominal wall in front and at the body sides. For Professor Tweedy the cervix of the uterus in the normal—though described by all as a pelvic organ—is actually beneath his floor, and in line with this he considers it is preserved from pressure from above. He therefore considers his reticulum, "formed of bundles of fibrous tissue and smooth muscle," as the opponent of the force above, tending to depress the viscera—that is to say, of the abdominal parietes. For me, the cervix in the normal is above the pelvic floor, and it and surrounding visceral parts are constantly being pressed downwards, with an ever-changing force, upon the pelvic floor. For just as I see that the thoracic diaphragm and abdominal wall which close in the abdomino-pelvic cavity above, in front, and at the sides are ever pressing upon the contained visceral mass (which perhaps Professor Tweedy does not see[1]), so do I see that the pelvic floor is ever resisting the downthrust so caused by pressing upwards against the collective pelvic viscera abutting upon it. This floor, in the normal, is ever able to meet the tendency to the visceral descent, because it is formed of like tissues to the structures above compressing the viscera, and because its contraction is governed in the same way, for which reason indeed, it can react both in time and force appropriately as the occasion requires—a capacity which smooth muscle can never display.

And now for the proof. In my former letter, in which I criticised Professor Tweedy's conception, I pointed out that on coughing there is a rise of intra-vaginal pressure—which seemed to me to show that on coughing at least the cervix is not preserved from pressure from above. But Professor Tweedy, instead of explaining how—when the patient coughs—the pressure in the vagina becomes raised, if the viscera above the vagina and above his pelvic floor are not pressed downwards with a greater force upon some resisting superficies beneath, waives aside my remark and says it "does not affect the question." Measurements of the pressure in that part of the rectum immediately below the cervix, and against which the cervix abuts, show beyond dispute that the cervix is constantly being pressed downwards on this part of the rectum. The pressure can easily be made by means of a manometer. The pressure is not due alone or in greater part, or perhaps in any part, to the tonic or other contraction of the rectal walls. The pressure varies with the position of the individual: it shows variations even with quiet respiration. Much greater rises occur with movements, with coughing and straining; and, as I have shown in my book on this subject,[2] is only to be explained by the resistance upwards of the pelvic floor upon the pelvic viscera, which are pressed, now more, now less, downwards according to variations in contraction of the abdominal parietes. Why does Professor Tweedy bring forward an hypothesis which can so readily be shattered? Why, when it is pointed out to him that the position of the uterus is affected by surrounding parts, in virtue of their change in volume—and therefore cannot wholly depend on the so-called ligaments of the cervix—does he merely say: "That the condition of the

[1] If Professor Tweedy does not see this, I must refer him to my book for reasons upon which my opinion is based.

[2] The Statics of the Female Pelvic Viscera, vol. i., H. K. Lewis, 1918.

bladder influences the position of the uterus is surely not disputed by anyone." Why does he not see, if the bladder as it fills can push the cervix more backwards and upwards in the pelvis, that the visceral parts beneath the cervix, between it and the levator ani, can equally ably maintain it at its level in the pelvis. As long as the pelvic floor can keep the parts abutting upon it at their level, it is obvious that parts immediately above these cannot be depressed. The fact that there is an aperture in the floor is of no avail, for in the normal it is efficiently guarded and no visceral escape can here occur.

And Professor Tweedy regrets that the designation of the tissues he describes as the tendons of the uterus is not acceptable. He states, but does not show, that they have a similarity of structure and function with the tendons of voluntary muscle. This I, root and branch, deny. They have neither the structure nor the function of tendons. In the normal they do not function as tendons and are incapable of doing so, and in structure they do not resemble tendons in the least. I am, of course, well aware of the condition of the connective-tissue attachments of the uterus in prolapse. That when displayed in the manner Professor Tweedy describes, and when the cervix is pulled downwards, they stand out in relief and can be compared with stirrup-straps is well known. But that is a condition found in prolapse. It is a pathological condition resulting from a lesion of the levator ani *plus* rises of intra-abdominal pressure. It is an attempt, if you like, at compensation, but it does not suffice to compensate the patient. The condition may be compared to the polycythæmia arising in heart disease.[3] The increased powers of the blood do not compensate for the lesion. In these marked cases of prolapse the patients are incapable of ordinary activities. They advance with a "slow, cautious tread, carefully avoiding any jerk. ..... Almost always there is a sensation of weakness, dragging and bearing down, and of incapacity to work."[4] I cannot describe here the various conditions found in prolapse; those also I have described in my book. But that the connective-tissue attachments in some cases of prolapse are hypertrophied and do in such bear some of the strain of the prolapsed parts, does not show that these tissues in the normal bear all or, indeed, any of the strain which the thoracic diaphragm and abdominal wall, during activity, are constantly causing.

And to my statement that after Wertheim's operation, this pelvic floor of Professor Tweedy is mostly removed, he replies I am mistaken. He says that this tissue "is severed but a short distance from the cervix"; and that ..... "the gap left in the vault of the vagina quickly closes by central cicatrisation and Mackenrodt's ligaments are drawn tighter than ever." I wonder whether the majority of gynæcologists will uphold Professor Tweedy's statement? To me, it seems like a figment of the imagination, fitting in very well, no doubt, with Professor Tweedy's hypothesis; but fitting in very badly with the modern teaching of the operative treatment of cancer of the cervix. But even if it stand, may I ask Professor Tweedy this question: How is it that a man like Dr. Fothergill—I may say, the exponent of the visceral connective-tissue hypothesis, one at least who has done his best to support it and advance it—how is it that such a man, when dealing with prolapse at operation, does not even attempt to bring Mackenrodt's ligaments together—much less the utero-sacral—in front of the cervix, but is content on other measures?[5] Although at one time (1910) he did this, now (1917) he has given it up! It is true that he supposes that his method of anterior colporrhaphy has this effect; but I am not referring to what Dr. Fothergill supposes, but to what he actually does according to his own description. Nor is he the only one who cures prolapse at operation without affecting in any way Mackenrodt's ligaments. Moreover, if Mackenrodt's ligaments, in virtue of their smooth muscle, are so important in maintaining the uterus at its level, how is it possible for any operation to succeed, since no operation can cause a reappearance of this precious smooth muscle, which in prolapse, in spite of the stirrup-like straps, has almost or quite disappeared? (Fothergill.[6])

Finally, of the "several minor and three important particulars" in which I appear to differ from Professor Tweedy the first is "in respect to the existence during pregnancy of these uterine tendons." But having mentioned this Professor Tweedy drops the matter. Will he kindly explain how the uterus is supported in pregnancy? As I pointed out, if his conception is correct, with the occurrence of pregnancy the cervix must sink in the pelvis. This, however, is not in harmony with fact. Nor, indeed, as far as I can discover, are any of the particulars of this most fanciful and specious hypothesis.—I am, Sir, yours faithfully,

Rugby, April 28th, 1919. R. H. PARAMORE.

[3] THE LANCET, 1919, i., 700.

[4] Hellier: On the Condition called "Falling of the Womb," THE LANCET, 1910, ii., 933.

[5] Fothergill, Eden and Lockyer's New System of Gyn., 1917, vol. ii., p. 659.

[6] Ibid., p. 639.

LUNG-PUNCTURE IN THE TREATMENT OF INFLUENZAL PNEUMONIA.

To the Editor of THE LANCET.

SIR,—Dr. M. Benaroya's cases of clinical improvement after lung-puncture in pneumonia, quoted in THE LANCET of May 3rd, afford good example of a fact which was not unknown to physicians of a former generation, even if it has fallen out of remembrance somewhat at the present time. At the period when, some 18 years ago, I first became attached to the East London Hospital for Children it was the custom of the visiting physicians, and of Dr. Eustace Smith in particular, to advocate the free use of exploratory chest-puncture in pleuro-pneumonia on the ground that, if no fluid was found, it would at least lead to clinical improvement and early resolution of the pulmonary consolidation. On thinking the matter over at that time, I came to the conclusion that the improvement must be due to a leakage of air from the lung into the pleural cavity conducing to lung rest and diminished absorption of toxins, and I have seen no reason to alter this view as a result of further experience. In certain cases frank pneumothorax signs follow a lung-puncture, and where they fail it is well to remember how large an amount of gas—some 300–400 c.cm. at least in the adult—may enter the pleural cavity without more in way of gross signs than a slight weakening of the breath sounds. Surely the explanation offered by Dr. Benaroya—namely, a stimulation of phagocytosis—can hardly cover so striking and so rapid (three hours!) a disintoxication as occurs in the cases he describes!

On grounds of the occasional value of such lung-puncture, and the explanation of it I had conceived, it has long been my intention to try the introduction of air from outside in cases of pneumonia with severe toxæmia, and a few months back I put together at the East London Hospital an apparatus for this purpose. For though lung-puncture appears to have resulted in but few accidents in the past, yet the danger of serious or fatal gas embolism must not be overlooked, particularly since it is readily eliminated. The apparatus consists of a simple water manometer on a stand constructed by the hospital carpenter, connected by a T-piece with tubing closed at one end by a clip and at the other leading through a cotton-wool filter to a pneumothorax needle of the well-known Forlanini type. The pleural space is to be identified by means of the manometer and air admitted till the intrapleural pressure has risen to any desired point up to the atmospheric; no attempt at pressure above the atmospheric is contemplated.

The actual stimulus which led to the preparation of this apparatus, long over-due, arose from a paragraph in the paper on Influenza and its Complications, by Dr. Adolphe Abrahams, Dr. N. Hallows, and Dr. Herbert French, in THE LANCET of Jan. 4th. Their remark—"Simple needling of the chest has been so often followed by improvement in the patient's general condition that we would advocate such needling being done with less hesitation than is generally the case"—reminded me of the East London Hospital tradition on this point, my own views of its explanation, and the intention I had long had of treating severe pneumonias by the introduction of air from without. It would be interesting to know what view of the action of the lung-puncture was held by these writers as explanation of the improvement they report. Their inclination to regard their serious influenzal cases as essentially septicæmic does not exclude the probability that a large part of the toxæmia might arise from local lung lesions, even where these appear small in extent, and that an elimination, even partial, of this source might well prove the turning point in a case of serious outlook. Certain difficulties suggest themselves in the treatment

of influenzal pneumonias (more than in pneumonias of other causation) by the introduction of air into the pleural cavity—the commonly bilateral distribution, the solid condition of the diseased lung, the tendency of the air to rise to the highest point, &c., and these call for ingenuity, though they do not present insuperable obstacles. This letter, however, was not written to discuss the pneumothorax treatment of pneumonia, but only to point out that the beneficent effect of lung-puncture is no new discovery, and that its explanation is probably other than that put forward in the interesting and useful paper which appears in your current issue under the above heading.—I am, Sir, yours faithfully,

Queen Anne-street, W., May 4th, 1919. CLIVE RIVIERE.

THE LITERATURE OF HÆMATOLOGY.

To the Editor of THE LANCET.

SIR,—I am endeavouring to make a collection of reprints, &c., of papers on all aspects of hæmatology. These will be filed and indexed and may, I hope, be of permanent value.

May I ask those interested in this subject to be so good as to let me have any reprints they can spare, on either the clinical or experimental aspects of disorders of the blood.

I am, Sir, yours faithfully,

The Vine, Sevenoaks, April 30th, 1919. GORDON WARD.

LABORATORY METHODS AND THE DIAGNOSIS OF VENEREAL DISEASES.

To the Editor of THE LANCET.

SIR,—May I be permitted to make a few remarks on two articles dealing with venereal disease that appeared in your issue of May 3rd, one on "Primary Syphilis," by Staff Surgeon S. F. Dudley, R.N., and the other on the "Treatment of Gonorrhœa," by Captain H. E. Gibson, R.A.M.C. (T.F.).

Staff Surgeon Dudley considers that it is a great advantage that the same medical man should undertake both the laboratory and clinical work, a point emphasised in regard to dark-ground examinations for *Spirochæta pallida*, by Colonel L. W. Harrison in his valuable work on venereal diseases, and by myself in an article in your columns.[1] If, however, the doctor in charge of the clinic has had no special training and experience in clinical pathology, probably it would be better to leave the blood examinations to a clinical pathologist, as the Wassermann reaction is almost valueless unless carried out with great care by an experienced person. Staff Surgeon Dudley thinks that "many medical men fail to realise the overwhelming superiority of laboratory methods in the early diagnosis of syphilis." In this I cannot agree with him. As I was early in preaching the gospel of the value of laboratory methods of diagnosis it is unlikely that I should now undervalue their importance. Probably, however, the present-day tendency is to put too great faith in laboratory findings and to unjustifiably decry the value of clinical experience in diagnosis. Staff Surgeon Dudley's statistics are based on the assumption that a positive Wassermann reaction alone and unsupported by other evidence is certain proof of syphilis, an assumption which I consider cannot be accepted.[2] Staff Surgeon Dudley says that "a result is not called positive unless *almost complete* inhibition of hæmolysis has taken place." When using the original technique, unless the reaction is strongly positive with *complete* inhibition of hæmolysis, it cannot be accepted as positive evidence of syphilitic infection, and even a strong positive is not pathognomonic. My experience of galyl is not the same as Staff Surgeon Dudley's, as I have had many more relapses after galyl than after the other preparations, and the *Spirochæta pallida* can frequently be found in scrapings of the chancre 24 hours after a galyl injection, whereas spirochætæ have practically always entirely disappeared after injection with other preparations. Staff Surgeon Dudley's conclusion that "two or three doses of salvarsan followed by a long course of mercury is a good routine treatment" must be received with caution in view of the very large amount of evidence in favour of a routine course of 6 or 7 injections of arsenobenzol preparations, except when signs of intolerance occur. The statement that "clinical diagnosis is so uncertain as to be practically useless" is only true in so far that no sore can be definitely said to be non-syphilitic. Very many chancres can, however, with absolute certainty, be diagnosed as syphilitic on their appearance alone.

Captain Gibson's standard of cure for gonorrhœa is an unusual one, and probably most venereologists will prefer Mr. Frank Kidd's as stated in his excellent little book on "Common Diseases of the Male Urethra." Usually when, after massage of the prostate, pus cells are found in the fluid expressed, this is considered an ominous sign, while a few staphylococci in the urine are not considered to be of much import. Captain Gibson's standard of complete absence of all organisms from the urine after prostatic massage seems to show that he considers a staphylococcus more suggestive than pus cells. Captain Gibson's conclusion that the germicidal properties of potassium permanganate are almost negligible, *especially as regards the gonococcus*, comes as a shock to those accustomed to think that potassium permanganate and silver salts have an almost selective action on the gonococcus, and who only use oxycyanide of mercury for mixed infections. It is worthy of note that Colonel Harrison, with his very extensive experience of all irrigating fluids, including flavine, still considers potassium permanganate the best disinfectant for routine use. Gonococcus strains vary so much in virulency that many experienced observers would not think it safe to recommend initial doses of 20 to 50 millions. Captain Gibson's remarks concerning prostatic massage and complete irrigation in acute prostatitis and acute epididymitis seem to suggest that he does not consider such treatment absolutely contraindicated, which is the view held by nearly all writers on the subject. Captain Gibson concludes by saying "one has sometimes to prescribe sandal oil as a placebo, but its only apparent action is to upset the digestion." That the balsams do not cure gonorrhœa is now universally admitted, but there can be few who have not experienced the marked palliative effect of sandalwood oil in very acute inflammation of the mucous membrane of the urethra or bladder

I am, Sir, yours faithfully,

Harley-street, W., May 6th, 1919. HUGH WANSEY BAYLY.

[1] THE LANCET, Nov. 3rd, 1917.
[2] THE LANCET, May 4th, 1918.

THE MEDICAL PARLIAMENTARY COMMITTEE.

To the Editor of THE LANCET.

SIR,—In the reports of the Conference of the Medical Parliamentary Committee held at the Central Hall, Westminster, on May 2nd, 1919, it was stated in the *Morning Post* and the *Times* that of the 20 per cent. of the coöpted members of the Permanent Medical Parliamentary Committee not more than one-quarter should be engaged in *general* practice; this is a serious mistake. It should read, "not more than one-quarter of the coöpted members should be engaged in *consulting* work."

We should be greatly obliged if you would kindly publish this in your next issue.—Yours faithfully,

ARTHUR LATHAM,
CHARLES BUTTAR,
Hon. Secretaries.

20, Hanover-square, London, W.1, May 6th, 1919.

The War and After.

THE CASUALTY LIST.

THE name of the following medical officer appears among the casualties announced since our last issue:—

Previously Reported Missing, now Reported Killed.

Capt. J. M. Evatt, R.A.M.C., attached R.F.A., was a student at University College Hospital, London, and qualified in 1913. He held an appointment at the hospital, and afterwards joined the R.A.M.C.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualties among the sons of medical men are reported:—

Capt. W. N. Gale, York and Lancaster Regiment, previously reported missing, now believed killed in May, 1917, elder son of Dr. A. K. Gale, of Norton Woodseats, Sheffield.

Capt. E. M. Knott, A.F.C., R.A.F., died of wounds, only son of Dr. E. M. Knott, of Sutton Coldfield, Birmingham.

Parliamentary Intelligence.

NOTES ON CURRENT TOPICS.

Pensions and Medical Boards.

THE Select Committee on Soldiers' and Sailors' Pensions met again at the House of Commons on Thursday, May 1st, Sir MONTAGUE BARLOW being in the chair.

Sir ALBERT FLYNN, acting secretary to the Ministry of Pensions, continuing his evidence, dealt with the naval medical boards. He thought that they were more reliable than the military ones, but were, perhaps, a little harder on the men. He accounted for the difference between the results of the military and naval boards by saying that he thought that the naval boards had been less crowded and crushed in their work, and there had not been the same pressure upon them. All he was prepared to say was that the military boards were wrong, or the revising board was wrong. There was something very wrong somewhere. He had come across cases, as the Committee would have also, where they must think that the medical boards were sometimes very profoundly wrong. He suggested that the remedy was properly selected boards composed of men who did nothing else. He suggested that the doctors had not the slightest idea how to assess attributability.

Captain LOSEBY asked what happened to a man during the eight or nine months he was waiting for his appeal to be decided?

Sir ALBERT FLYNN said if the medical referee thought he had a good case he got the pension advanced.

The CHAIRMAN: But if he loses he may have to refund.

Captain LOSEBY: But if the referee does not support his appeal he may starve.

Sir ALBERT FLYNN said he did not defend that.

The Committee adjourned.

HOUSE OF LORDS.

THURSDAY, MAY 1ST.

Ministry of Health Bill.

Viscount SANDHURST, in moving the second reading of the Ministry of Health Bill, said that supposing there to be any doubt as to the advisability of the production of the measure he thought one had only to point to the mass of medical examinations during the last few years for soldiers, to the national service and recruiting returns, which revealed a state of health among our adult and adolescent population which was surprising—indeed, he might almost say staggering—and forced home to the public mind the fact that something in the nature of a real organisation to meet the health question was absolutely necessary. Further, those who had experience of educational matters knew well how necessary was the health guardianship of the children, and also especially of the pre-natal condition of mothers. The new Ministry of Health would be a preliminary and first step essential for getting subsequently into working order various local and national measures which would, they hoped, gradually mitigate the causes of disease, and later prevent the overlapping and confusion now existing with a variety of authorities. In time the Government hoped to disentangle and reorganise the health services so as to render them really effective in the public interests.

Referring to paragraph (*d*) of Clause 2, which the Government had consented to insert in the Bill in the other House, Lord Sandhurst explained that its object was to ensure transfer at once to the Health Minister, with the other matters, of the supervision, medical inspection and treatment of children and young persons in schools, which had been exercised by the Minister of Education. The division of functions between the two departments in this matter broadly amounted to this: the Minister of Health would be responsible for determining principles, whether the service was necessary, and what standard must be attained from time to time by the authorities who would provide it; while the Board of Education would continue to conduct the necessary negotiations in relation to the administrative aspect of those services, and deal with administrative matters arising from day to day in relation to them.

Medical Research Committee.

Research was not to be merged with the Insurance organisation in the Health Ministry. The Research Committee was to be put under the Privy Council. In regard to this most interesting question they had to consider how much medical research could be carried out by the medical staff in close connexion with either the health department or some other department, or whether over a wider field, perhaps a limitless field, of research the most advantageous research could be prosecuted by a body less intimately connected with and less immediately directed by current administration in health matters; because it must be recognised that the field of research was one of boundless possibilities. He submitted that it had been shown that for really effective work the conditions of medical research must be as elastic as possible, and that it should be in active coöperation with all the best scientific activities, wherever they might be, in this university or in that, or in any part of the United Kingdom or Empire, or indeed in any foreign country. It would cause the Research Committee to fall short of its full usefulness by the limiting of its scope and horizon if it were cramped by being confined to one department or another, wedded, perhaps, to some narrow field of administration, and human nature, being what it was, possibly to a department which might have a certain problem for solution within its own walls, to which it attached importance out of proportion to its general value. A further reason for giving freedom to the Research Committee was that no one could tell quite where scientific investigation might lead.

Consultative Councils.

There had also been a certain amount of discussion in the other House in regard to what was known as consultative councils to be found in Clause 4. It had been urged that these councils were unnecessary, as the work had been done and could be done by local authorities or associations of local authorities, and, further, that such consultative councils would displace and render nugatory the best efforts of local authorities. If that idea existed in the mind of any noble lord he would do his utmost to disabuse him of it. The local authorities would not be displaced or interfered with at all. It was not proposed that these councils should represent particular areas or interests. It was desired to get the best people, men or women, with the best knowledge and experience to serve on the councils. Possibly by the formation of these councils there might be a safeguard provided against a too rigid so-called bureaucratic leaning, because the obligation on the Minister to establish these bodies was statutory. They had a right to offer the Minister advice, and the Minister was under an obligation by Order in Council to receive and consider it. He did not think that the suggestion that these Councils might tend to relieve the Minister of responsibility to Parliament need be anticipated seriously in the slightest degree. He thought they might leave Parliament to see to that.

Discussion: The Functions of the Local Government Board.

The Marquess of CREWE said that the principal feature of the Bill was the disappearance or absorption of the Local Government Board. It appeared to him to be absolutely imperative if this measure was to be a real one that action should be taken to shed, as rapidly as possible, from the Ministry of Health the somewhat numerous functions appertaining to the Local Government Board, which had nothing to do with health, otherwise the Government would be open to the charge that they had placed a different name over the shop, but that the wares sold were precisely the same, and that nothing had been effected except to add a number of fresh functions to the Local Government Board. The removal of the whole system of the relief of the poor from the Ministry of Health was a purpose which obviously ought to be carried out with the utmost speed. He was disposed to think that the Government had taken the right course in placing research under the Privy Council. As regards the consultative councils, he thought that there was a certain danger that they might detract from the responsibility of the Minister if they were made large and powerful bodies. He would like to know how far the members of the councils would be at liberty afterwards to express in public divergent views from those of the Ministry. If the scope of the councils were of the more limited kind he could understand that they might serve a very useful purpose. He congratulated the Government on having produced what ought to prove a most useful and practical measure.

Advocacy of Additional Measures to Improve Health.

Lord DOWNHAM thought that too much had been claimed for this Bill, and too high expectations had been formed of a rapid improvement in the health of the people from the mere setting up of a Ministry of Health. The Bill would lead to the greatest possible disappointment unless it was followed by a new and improved public health policy, by a new and improved Poor-law, and by a very large increase in our hospitals, our sanatoriums, our clinics, the numbers of our educated and re-educated medical men and surgeons, the number of our nurses, and all the different human agencies which contributed so very largely towards public health. Poverty would not disappear by perorations nor misery by mere machinery. The public health of our country had been a plant of very gradual growth, and it would continue to be so notwithstanding the setting up of a Ministry of Health. As one who had been President of the Local Government Board, he regretted immensely that many of the advocates

of the Ministry of Health—he himself was an advocate of the Ministry—had, in their zeal for setting it up, thought it necessary to paint the picture far too black and to make out that during the last 40 years practically nothing had been done by the Local Government Board or by the local authorities. That picture was not true. The Bill so far as it went was undoubtedly a good one. Its main feature was that it fused the great preventive side of medicine, carried out through the various local authorities and the Local Government Board, with the great curative side, the National Insurance Commissioners. Mr. Morris, the house governor of the London Hospital, at a meeting of the Hospital Saturday Fund, had made a very wise suggestion, namely, that general practitioners ought to have the right to walk their own hospitals again for two or three months every year. He asked whether Clause 2 gave the Minister of Health any power whatever over the voluntary hospitals, which must remain the training grounds of the medical profession. This matter of medical education was one proof to his mind that the Bill was not a sufficiently big Bill, and he hoped that their lordships would address themselves to making it, if possible, a little bit bigger and larger. The Bill would effect very little unless it was followed by other Bills with very much enlarged grants by which they might have a more satisfactory system of hospital sanatoriums, well-educated medical men, and so on.

Medical Education.

Viscount HALDANE said that the training of doctors and the future enlargement of their course was a very great subject, and one which required to be dealt with, but it belonged to a totally different service from that of health. It belonged to the service which was performed by the universities and the great medical schools. No doubt it was true, as Lord Downham had said, that health conditions in this country were better than they used to be, and excellent work had been done by the Local Government Board. But his complaint was of the smallness of its quantity. As regarded the training of medical men, he hoped that by means of consultative committees and by close coöperation between departments the Ministry of Health would keep in relation with all the bodies which had charge of medical training. And he was not confining himself merely to civilian doctors. He had had in his time a good deal to do with that admirable body, the Army Medical Service, which had enormously improved itself in the last ten years. Nothing could be more disastrous to the Army or Navy or Air Service than that the training of its medical officers should be separated from the great and increasing stream of knowledge and the great and increasing recognition of new duties and new spheres of work which belonged to the medical profession. It might well be one of the interests of the new Minister to keep watch upon the wider views which were growing up about the medical profession and its tremendous sphere of activity in this country, and to see that the sporadic growths ceased as far as possible to be sporadic.

Further Advocacy of Larger Health Measures.

Viscount KNUTSFORD said that many of them had very high hopes of what this Bill would bring forth, and as by far the most important organisation in England to-day affecting the health of the nation was the Medical Research Department, he was rather alarmed to see that that department was taken out of the duties of the Minister of Health and handed to the Privy Council. He hoped that they would have some assurance from the Government that the Medical Research Department was not going to be stopped. At the present moment the miserly grant that they got was only £50,000 a year, which to-day was probably worth about £30,000 to £40,000. The country was at one time paying £1000 a week to poor girls poisoned by T.N.T. This Medical Research Department saved that by investigating and finding out the cause and stopping it. Therefore he did hope that when the Department was turned over to the Privy Council it would be treated adequately and properly. They would not be content unless the Minister of Health brought forward very soon some better Bill than this, which was only an enabling Bill. They wanted something better than a glorified Local Government Board. The Minister was taking over the curing of the whole of the insured part of the nation. 20,000 medical men were now placed under the Minister of Health and they would be very disappointed indeed if the Minister continued the very low standard of healing that was obtained by the country from panel doctors. The term "panel doctor" to-day was ridiculed by the country. It was not the fault of the medical men; it was because the power given to them was so very limited. They would expect the Minister of Health to see that there should be an improvement in the medical attention that the country was getting and paying for. What was needed was a very careful survey of the country, area by area, setting out what facilities the people had for getting the help they needed, and how they could get it, and the prevalence of illness in those districts. All their lordships who lived in the country knew the great difficulty in getting medical or surgical help for a man who was seriously ill. That must be remedied. It was also necessary that they should improve the preventive side of medicine as well as the curative. He did not feel inclined to be comforted by the statistics given regarding the improvement in the health of the nation. They knew that of every 10,000 children born five years ago only 8000 were alive to-day. All those matters they could not allow to drift any more if they cared for their country. He wanted the Bill to pass unanimously.

Medical Representation in the House of Lords.

Lord WILLOUGHBY DE BROKE said it was positively lamentable that in the absence of a Minister of Health a Bill like the Dogs Protection Bill, flying in the face of the whole scientific knowledge of this country, should be allowed to pass through the House of Commons and let loose the floodgate of criticism upon a subject which was *res judicata*. He hoped that that Bill would come to the House of Lords in order that they might have the satisfaction of throwing it out. He complained that although they had had honours list after honours list there was no representative of medical science in their lordships' House at the present moment. He hoped they would have some members of the various branches of science given seats in the House of Lords. It was important to educate the medical profession, Parliament, and the general public on health matters. Something appeared recently in the *Times* over the signatures of the greatest medical authorities of the country with regard to the treatment of venereal disease. But they could not at this time of day bring the British public to submit to what savoured of bureaucracy unless they had the justification of having first given them the necessary knowledge.

After further discussion the Bill was read a second time and committed to a Committee of the whole House.

Nurses' Registration Bill.

Viscount GOSCHEN introduced a Bill to provide for the training and registration of nurses, which was read a first time.

Medical Treatment of Children in Ireland.

The Public Health (Medical Treatment of Children) (Ireland) Bill passed through Committee and was reported without amendment to the House.

TUESDAY, MAY 6TH.

Scottish Board of Health Bill.

Lord STANMORE moved the second reading of the Scottish Board of Health Bill.

Lord BALFOUR OF BURLEIGH and Viscount HALDANE supported the principle of the measure.

Lord FORTEVIOT also gave a hearty welcome to the Bill, not so much for what it was in itself as that it opened the way for a more vigorous and scientific treatment of the public health. The present competition and overlapping was very wasteful, and was best illustrated by a well-known case of a family where the father was an insured person and his medical requirements were attended to by the Insurance Commissioners; the mother was an ordinary medical patient of an ordinary medical man; the children were under observation by the medical officer controlled by the education authority; the grandfather and grandmother, who lived in the house, were one an old age pensioner under the care of the parish medical officer responsible to the Pension Committee, and the other a pauper lunatic for whom the Board of Control was responsible; and one child was at the moment suffering from a notifiable infectious disease and was under the care of the medical officer of health responsible to the local authority. This Bill would at least coördinate all these services and several others under one department.

Medical Services in the Highlands and Islands.

He desired to draw attention to an aspect of public health in Scotland which did not exist in any other part of the United Kingdom, and to ask how this Bill was going to affect it. He referred to the Highlands and Islands of Scotland. He desired an assurance from the Government that the pressing necessities of their case would not be lost sight of or overshadowed by the larger national question. The ordinary medical and nursing service in the Highlands and Islands needed very special treatment. In large areas a medical man was never present at a birth, and the supply of maternity nurses might be said not to exist. It was not surprising that puerperal fever and other diseases were common and that there was a great deal of suffering and illness that skilful help would have prevented. The medical and nursing attendance for ordinary sickness was deplorably inadequate. A considerable portion of the population lived 20 to 30 miles from the house of the nearest medical man. The income, too, of the medical man was so precarious in many cases that they could not provide the best means of

locomotion. While the average percentage of uncertified deaths all over Scotland was 2 per cent. in the Highland parishes it varied from 17 per cent. to over 80 per cent., and in one parish 9 deaths occurred one year and 12 another, not one of them having been seen by a medical man.

He would like to have an assurance from the Government that the work of the Highlands and Islands Medical Board would not be interrupted. Under the Board agreements had been made in all but a very few parishes with the medical men that they should attend on persons to whom the practitioner's ordinary fee would be an undue burden at fees which must not exceed 5*s.* for the first visit and 2*s.* 6*d.* for each subsequent visit, no matter what the distance of the patient from the doctor's house might be. The Board on their part undertook that the medical man should not suffer, but would be properly remunerated for his services. The scheme was working well and was undoubtedly fulfilling the purpose for which it was designed.

Scheme for Development of Medical Service.

He was also anxious that the schemes designed by the Board to complete a reasonable system of medical supply for those districts which had been delayed by the Board should now be carried out. A doctor in evidence before a committee had described the difficulties which presented themselves in carrying out a very urgent surgical case in one of the houses in the Highlands. He had to use the ordinary table for the patient, he got the schoolmaster to administer chloroform, and an old crofter to hold a candle to give him light. During the operation the crofter fainted, extinguishing the light with the most disastrous results. To meet cases of this kind and to serve for maternity cases where necessary, or to take in patients who needed more constant medical attention than it was possible to give at several miles' distance, the Board had prepared a scheme where at every convenient centre the nurse's house should have attached accommodation for one or two beds. It had been impossible during the war to proceed with the building of those houses, as of houses for the doctors, which were very much wanted, and he hoped the Government could assure them that the new authority would not allow these and other claims of the Highlands to be forgotten or neglected.

He hoped the new Board would do what it could to increase the supply of doctors and nurses. Their lordships might be surprised to know that under contract with the Highland Medical Board there were at least two Hindoos, one doctor who was a native of the West Indies, and at least one Chinaman applied for an appointment, but he thought it was not completed. These might be, and he thought they were, highly competent medical men, but it could not be an entirely satisfactory arrangement either for the medical man or for the patient—perhaps more unsatisfactory for the doctor than for the patient—that these doctors should be practising in the latitude of the Scottish Highlands. In regard to nurses the case was even more pressing. The Board was most anxious that Gaelic-speaking young women should be induced and assisted to take the course which would make them fully trained nurses, and he hoped that help in this matter would not be beyond the province of the new Board of Health.

This Bill was then read a second time.

Public Health (Medical Treatment of Children) (Ireland) Bill.

This Bill was read a third time and passed.

HOUSE OF COMMONS.

THURSDAY, MAY 1ST.

Vivisection of Dogs.

Captain WALTER ELLIOT asked the Home Secretary if he could state the number of dogs in the United Kingdom; the number, or an estimated number, of dogs vivisected during the course of each year without anæsthetic or other precautions capriciously or for profit by dog-fanciers; whether all or any premises of dog-breeders or fanciers were liable to inspection day and night by Home Office inspectors; and the number of dogs annually destroyed in the United Kingdom with and without anæsthetics.—Mr. SHORTT replied: No exact figures are available as to the number of dogs in the United Kingdom, but it was estimated in 1917 that there were between 3 and 4 million dogs in the country. The number at present is probably less. I have no information as to the number of dogs operated upon by dog-fanciers or other persons for other than experimental purposes. The premises of dog-breeders or fanciers are not liable to inspection by the Home Office. I am unable to state the number of dogs annually destroyed in the United Kingdom.

Insurance Act Medical Benefit.

Mr. GODFREY LOCKER-LAMPSON asked the Secretary to the Local Government Board, as representing the National Health Commissioners, if he was aware that, owing to the National Health Insurance Acts imposing a rate of remuneration limit of £160 per annum, a considerable number of non-manual workers whose wages, with war bonuses, now exceeded that limit, would cease to be insured after July 1st next, and will thereafter have to pay for medical attendance, &c., as private patients; whether he had received representations that these workers objected to being thrown out of insurance after paying contributions for so many years; and whether the Government proposed to bring in a short Bill to enlarge the limit, which, though appropriate when the Act was passed in 1911, was inappropriate now.—Major ASTOR replied: Under present conditions it is the case that many non-manual workers whose remuneration, inclusive of war bonus, has exceeded the rate of £160 a year, and for whom their employers have ceased on that account to pay contributions, will go out of insurance at the end of the current contribution year (June 30th) and will cease to be entitled to medical benefit in December next. Representations on behalf of the persons concerned have been received from various quarters, and the whole matter is now under consideration. I hope shortly to be in a position to make a statement on the subject.

Medical Men on Dispersal Boards.

Viscount WOLMER asked the Pensions Minister whether he was aware that medical men serving on dispersal boards in Aldershot and elsewhere had received no pay for January, February, or March of this year; and, in view of the inconvenience caused to these doctors, he would give instructions that payment for the services they have rendered be issued to them without any further delay.—Sir L. WORTHINGTON EVANS replied: I am informed that all claims of medical men who served on dispersal boards during January, February, and March of this year have now been satisfied.

Port Sanitary Authorities and Hospital Accommodation for Infectious Cases.

Mr. LESLIE SCOTT asked the President of the Local Government Board if he was now in a position to indicate what practical assistance he could offer to the port sanitary authorities of the country towards providing hospital accommodation for infectious cases as urged by the Army Medical Council and the Local Government Board, and as discussed at a recent conference convened by the Local Government Board.—Dr. ADDISON replied: The whole question of port sanitary administration is at present under consideration, and the Local Government Board are in communication with the Treasury on the subject. I hope at an early date to be able to announce what action is feasible.

Hospital Accommodation at West Ham.

Colonel THORNE asked the Pensions Minister if he was aware that the West Ham War Pensions Committee had for some time past been labouring under difficulties with regard to hospital treatment for disabled men; if he was aware that the difficulties had now been increased in consequence of the closing of the Mile End Military Hospital and the Whipps Cross Hospital, which were the only military hospitals available for the treatment of disabled men within easy reach of the borough of West Ham; if he was aware that the disabled men had now no priority to treatment at the general hospitals within reasonable distance; if he could see his way clear to set up a local hospital to be run entirely by the Ministry of Pensions for the benefit of all disabled men applying to the West Ham War Pensions Committee; and if he would take action in the matter.—Sir L. WORTHINGTON EVANS replied: I am aware that the West Ham Committee have been in some difficulty with regard to the provision of hospital treatment for disabled men. Within the last few days arrangements have been completed for the treatment of men at Queen Mary's Hospital, Stratford, and it is anticipated that this provision will be adequate. If it should not be found so other steps will be taken, but I do not consider that there is any necessity for setting up a special local institution.

Surgical Appliances for Disabled Soldiers.

Lieutenant-Colonel ARCHER-SHEE asked the Pensions Minister whether discharged and disabled officers and men who were obliged to use surgical boots, crutches, and other special appliances were entitled to have them replaced when worn out at the public expense?—Sir L. WORTHINGTON EVANS replied: The surgical appliances of disabled men are renewed at the expense of the Ministry of Pensions and those of disabled naval officers at the expense of the Admiralty. Disabled officers at present obtain their appliances in duplicate at the outset, but subsequently bear their own expenses for renewals. I hope soon to have completed arrangements for taking over the supply of surgical appliances for disabled officers and for treating them on the same lines as disabled men.

Release of Fazakerley Hospital.

Mr. LESLIE SCOTT asked the President of the Local Government Board if he had had any reply to the suggestion made by him to the War Office some time ago that the American Red Cross hospital at Mossley Hill might be taken over for military purposes so as to release the largest Liverpool fever hospital at Fazakerley for its proper use as an isolation hospital.—Dr. ADDISON replied: I have heard from the War Office that they are arranging to take over the Mossley Hill Hospital and to release the Fazakerley Hospital.

FRIDAY, MAY 2ND.

Animals (Anæsthetics) Bill.

Lieutenant-Colonel WALTER GUINNESS moved the second reading of the Animals (Anæsthetics) Bill. He said that the measure was designed to deal with an omission in the law in regard to cruelty to animals. Over 40 years ago it was provided that in cutting operations performed for the purpose of experiment anæsthetics should be used, but in the far larger number of cases which had nothing to do with research, and the operations were merely carried out for the convenience and profit of the owner, no anæsthetic was obligatory. The sufferings of animals had therefore, instead of being alleviated by medical science, been too often greatly increased by it. Surgical operations were now performed upon animals which were never dreamed of before the discovery of anæsthetics revolutionised surgery. The Bill in its present form had been very carefully considered, and sought to meet agricultural and veterinary interests which had a claim to be heard. The scheduled operations were limited to horses and dogs, and a distinction was drawn between those which should be performed under a general anæsthetic and those for which only a local anæsthetic was required.—Mr. BOTTOMLEY seconded the motion.

Sir WATSON CHEYNE said that the Bill had his cordial sympathy. One of the great hindrances of those who had been employed in trying to discover the secrets of nature was the persecution to which they were subjected by people who, in their own dealings with animals for gain or pleasure, showed no regard whatever to suffering. He was horrified to think that so much was being done by a qualified set of men without anæsthetics, and he was glad to find himself in accord with Members in this matter with whom he should differ in connexion with another Bill shortly to come before the House, which would stop the development of research.—Sir W. WHITLA said he believed that if a plebiscite were taken they would not get a single dissentient voice among the 25,000 medical men in this country. If there was one fault in the Bill it was that it did not go far enough.—Dr. NATHAN RAW thought the Bill might be extended to other animals than those mentioned in the schedule.

Sir HAMAR GREENWOOD (Under Secretary to the Home Office) stated, on behalf of the Board of Agriculture and the Board of Trade, that the Bill would not be opposed. He hoped to be permitted in Committee to make certain amendments. He also reserved the right to introduce a new clause to this effect: "That nothing in this Act shall apply to any experiment to which the Cruelty to Animals Act, 1876, applies."—The Bill was read a second time.

Prevention of Anthrax.

Sir HAMAR GREENWOOD moved the second reading of the Bill to control the importation of goods infected or likely to be infected by anthrax, and to provide for the disinfection of such goods. He remarked that there was now being erected under the auspices of the League of Nations an international health department to which this subject would no doubt be referred. The disease was a common enemy of mankind, and it was only by international action that it could be stamped out.—Dr. RAW welcomed the Bill as a member of the medical profession as a serious effort to diminish suffering among those who had to handle wool. It had been his unfortunate experience to have to deal with a large number of people suffering from anthrax. The septic form of the disease caused an immense amount of suffering, and was practically always fatal. The medical profession would welcome any steps which the Government could take to protect wool-workers from this scourge. At the same time he hoped greater efforts would be made to prevent the wool from being infected before it arrived in this country.—Sir W. WHITLA said that the wonderful success of research work as regards the life and method of the propagation of the anthrax microbe was such that anthrax itself would be entirely stamped out throughout the whole world.—The Bill was read a second time.

MONDAY, MAY 5TH.

Petrol Supplies.

Major GLYN asked the President of the Board of Trade whether there was at present in the country an abnormally large stock of petrol; whether it was anticipated that difficulty would be soon experienced in providing tank storage accommodation for the Government stocks of petrol that were still on order for delivery in this country from the United States; and whether it was contemplated at an early date to remove the various restrictions imposed on the petroleum-distributing trade in this country with a view to reducing the cost of petrol to consumers.—Sir A. GEDDES replied: So far as the Board of Trade is aware, there is not at present in the country an abnormally large stock of petrol imported for civil consumption. The Government still hold large stocks of petrol imported for military purposes, but these are being gradually reduced. All motor spirit purchased by the Government for civil consumption has already arrived, and has been handed over to the distributing companies. It is my desire to remove the restrictions at the earliest possible moment.

TUESDAY, MAY 6TH.

Emigration of Tuberculous Soldiers.

Lieutenant-Colonel ARCHER-SHEE asked the Pensions Minister whether he was aware that the facilities he was prepared to afford ex-service men recovering from tuberculosis and certified non-infectious to proceed to warmer climates were valueless unless he could make arrangements with the departments concerned to provide a few berths on board passenger steamers and with the overseas authorities to relax the immigration laws in such cases; and whether, under the circumstances, he would reconsider his previous decision on this matter.—Sir JAMES CRAIG (Parliamentary Secretary to the Pensions Ministry) replied: My right honourable friend will consider what steps can be taken in the direction indicated.

Inadequacy of the Nursing Service.

Sir KINGSLEY WOOD asked the Secretary to the Local Government Board; as representing the Insurance Commissioners, whether he had received representations as to the inadequacy of the nursing service throughout the country; whether any grant was made to insurance committees for such purposes; and whether any scheme had been formulated.—Major ASTOR replied: Grants from the Exchequer to Insurance Committees in aid of nursing services for insured persons were voted by Parliament just before the outbreak of war. The inauguration of these services has been deferred in consequence of war conditions. The question of renewing those arrangements, or of including them in a wider provision for the whole community, is of great importance for the health of the people, and is amongst the matters that are being carefully considered in connexion both with possible developments of insurance services and health services generally; but I am not yet in a position to make a statement.

Pensions and the Medical Referee.

Colonel ASHLEY asked the Pensions Minister whether, in the event of the decision given by the medical referee in any particular case being in conflict with the opinion expressed by the pensioner's medical adviser, he would give instructions that the matter should be referred to a third member of the medical profession for final decision.—Sir JAMES CRAIG replied: Where the question is one of treatment or of inability to work, and the man is not satisfied with the medical referee's opinion, it is open to him, or to the local committee on his behalf, to appeal to the Ministry, and if the medical officers are unable to decide the question on the evidence before them the man is referred to an independent medical man, usually a specialist, for further examination.

Insurance Practitioners' Terms.

Sir KINGSLEY WOOD asked the Secretary to the Local Government Board, as representing the Insurance Commissioners, whether he could state whether any revision in the terms of insurance practitioners was contemplated; and, particularly, whether any extension of the present medical service was under consideration and could be indicated.—Major ASTOR replied: The original arrangements for the conditions of service of insurance practitioners arrived at in 1912 were to have been subject to revision in 1915; but owing to war conditions that revision was postponed. In March of last year, as a result of a deputation to the Chancellor of the Exchequer, certain augmentation of the insurance practitioners' remuneration was agreed to by the Government on war grounds, and at the medical men's request, preparatory to revision both of the services to be rendered and the remuneration to be paid, preliminary discussions were entered into on both these aspects of the matter, and also as to the possibility and the desirability of some extension or enlargement of the existing services, with a view to arriving at some new arrangements to take effect (it would be hoped) in 1920. The issues involved are complicated and difficult, and need further consideration and discussion with the Advisory Committee and others concerned. No statement can be made at present.

THE SERVICES.

ROYAL NAVAL MEDICAL SERVICE.

Temp. Surg. Lieut. N. B. Ross, who has been invalided on account of ill-health contracted in the Service, to retain his rank.

ARMY MEDICAL SERVICE.

Major-Gen. (temp. Lieut.-Gen.) Sir William Babtie, V.C., K.H.S., is placed on retired pay and is granted the honorary rank of Lieutenant-General.

Lieut.-Col. E. C. Montgomery-Smith, R.A.M.C. (T.F.), to be a Deputy Assistant Director-General (temporary), vice Lieut.-Col. F. R. Hill, who vacates the appointment.

Temp. Cols. W. T. Lister and H. A. Thomson relinquish their commissions and retain the rank of Colonel.

ROYAL ARMY MEDICAL CORPS.

J. H. Nicoll to be temporary Honorary Lieutenant-Colonel whilst serving with the Scottish Red Cross Hospital, Bellahouston.

Major and Bt. Col. J. S. Bostock is seconded for service with the Ministry of Pensions.

Major (temp. Lieut.-Col.) Sir Allan Perry retains the rank of Lieutenant-Colonel on ceasing to be employed.

Lieutenant-Colonels relinquishing the acting rank of Colonel on re-posting: H. A. L. Howell, C. R. Evans.

Major and Bt. Lieut.-Col. S. L. Pallant relinquishes the temporary rank of Lieutenant-Colonel on re-posting.

The undermentioned relinquish the acting rank of Lieutenant-Colonel on re-posting: Majors P. J. Hanafin, J. W. L. Scott; Capts. T. S. Eves, A. M. Pollard, E. C. Lang, S. D. Large; Temp. Capt. C. V. Bulstrode.

To be acting Lieutenant-Colonels whilst in command of Medical Units: Temp. Capt. (acting Major) W. E. Hallinan, Capt. and Bt. Major F. T. Dowling, Capt. (acting Major) H. W. Farebrother.

The undermentioned relinquish the acting rank of Major: Captains J. A. Andrews, D. C. G. Ballingall, N. V. Lothian, K. P. MacKenzie, H. P. Rudolf, J. P. Little, D. Bell, H. P. Hart. Temp. Capts. J. H. Legge, C. W. G. Bryan, A. M. Wood, H. Bowring, J. L. A. Grout, A. W. P. Todd, O. E. Finch, D. M. Morrison, J. Gibson, J. A. Doull, C. S. E. Wright, C. E. Sundell, C. H. Corbett, W. L. Cassells, W. F. Box, W. Edmondson, E. Burstal, J. M. Burnford, W. L. Johnson, J. Burke, J. S. Levis, C. L. Forde, R. R. Elworthy, P. Moran, D. W. Beamish, J. A. Currell, W. B. Griffin, C. J. H. Sharp, H. J. Milligan, G. McM. Miller, R. Scott, W. Ward-Smith, B. Whitehead, J. S. Arkle, N. S. Carmichael, A. L. Taylor, G. W. Riddel, J. E. Davies, J. H. Bankes, T. W. Melhuish, R. H. Rollinson-Whitaker, J. B. Tombleson, C. G. Adams, and H. H. Row.

To be acting Majors: Capts. G. G. G. Keane, R. C. Aitchison, C. Kelly, J. P. Litt, J. W. Littlejohn, J. R. Yourell, H. P. Hart, A. L. Stevenson, J. M. Weddell. Temp. Capts. H. Bowring, J. L. A. Grout, C. E. Dukes, W. D. Kennedy, A. L. Taylor, G. S. Murray, W. Gemmill, A. H. Coleman, H. G. Frean, A. L. Robinson, A. C. Mackay, R. R. Elworthy, F. H. Young, A. Poole, J. Bamforth, G. H. Culverwell, J. MacInnes, R. H. Lucas, N. G. W. Davidson, J. J. Gibb, R. B. Heygate, E. Kidd, E. G. Dingley, C. G. Adams, H. Cordner, A. Topping, J. H. Baird, W. T. Currie, C. Rutherford, E. Jamieson, W. M. Howells, G. P. Armstrong.

Lieut. (temp. Capt.) W. Hunt is seconded for service with the Egyptian Army.

The undermentioned Lieutenants (temporary Captains) to be Captains: (Acting Major) M. B. King (and to retain his acting rank), J. H. C. Walker, W. Hunt, W. L. Partridge, H. J. Bower.

Officers relinquishing their commissions: Temp. Lieut.-Cols. D. D. Logan, F. C. Dwyer, and G. M. Holmes retain the rank of Lieutenant-Colonel. Temp. Major E. W. Skinner, granted rank of Lieutenant-Colonel. Temporary Majors retaining the rank of Major: J. Bowes, L. Bidwell, T. E. Holmes, H. W. Bruce, W. F. L. A. Holcroft, C. H. R. Ramsbottam, M. Bridgeman, P. S. Clark, G. T. S. Sichel, J. S. Morrow, J. C. Webb, G. E. Macleod, M. B. Scott. Temporary Captain granted rank of Lieutenant-Colonel: C. D. Pye-Smith. Temporary Captains granted the rank of Major: W. Crabtree, J. F. Robertson, N. S. Carmichael, V. F. Soothill, J. Jack, C. L. Chalk, J. J. Gibb, A. Ryland, S. A. Owen, J. Anderson, G. Stiell, W. B. Griffin, J. B. Cook, J. Greene, H. F. N. Scott, W. K. A. Richards, T. C. Ritchie, W. J. Pearson, J. F. R. Gairdner, H. R. Macintyre, P. L. Blaber, J. C. L. Day, J. S. Joly, A. E. Knight, A. W. S. Christie, T. P. Cole. Retaining the rank of Captain: J. E. Richards, R. MacGill, F. Gordon, J. S. Rowlands, E. H. Morris, M. H. E. R. Montesole, E. E. Mather, H. W. Ogle-Skan, J. E. Taylor, W. W. Jameson, G. W. B. James, J. B. Jordan, E. T. Roberts, E. Nuttall, J. M. Pooley, H. C. Nickson, J. C. Michell, A. O'Flaherty, H. E. Jones, H. J. Jones, R. C. Robertson, C. S. U. Rippon, S. W. McLellan, J. C. Middleton, G. A. J. M. Loughnan, F. W. M. Palmer, A. G. Glass, N. M. Rankin, A. T. Nankivell, A. M. Webber, A. Randle, P. G. Lock, J. F. Mackay, A. E. Rayner, H. S. Roberts, A. E. Roberts, W. A. D. King, C. T. Neve, C. H. G. Prance, J. A. Lowry, C. de Z. Marshall, H. J. Keane, H. G. G. Jeffreys, D. W. Maclagan, G. R. Jeffrey, H. Robinson, O. G. Morgan, C. L. Williamson, H. Whitehead, A. L. Taylor, L. W. Pole, E. P. Titterton, T. G. King, J. F. MacLeod, W. H. Parry, L. F. E. Jeffcoat, S. B. White, A. J. Kendrew, H. F. Lumsden, A. A. Greenwood, C. E. Molino, E. B. Morley, J. Orr, T. Dowzer, A. H. H. Howard, C. C. Worster-Drought, G. C. W. Williams, W. W. Halichurch, S. F. Harris, T. E. Hincks, R. W. Reid, C. W. Coghlan, J. G. Dods, H. Heathcote, A. E. Woodall, D. Gillespie, E. J. Tyrrell, A. R. N. MacGillycuddy, M. H. Whiting, S. E. Bethell, H. O. Gough, H. M. Buchier-Hayes, J. McDonnell, H. H. Weir, R. H. Martin, W. MacLeod, S. Williams, O. Le F. Milburn, G. B. Nicholson, E. McKay Reid, R. W. Hodgson-Jones, J. Macfadyen, V. T. C. Bent, J. E. Sharp, J. Hunter, R. J. Reynolds, E. H. Black, P. A. Hendley, H. J. Shone, S. H. Harris, E. G. Hodgson, C. H. Haddow, R. D. Brennan, J. Brydon, E. R. Hart, A. O. Bisson, A. Shearer, M. H. Raper, J. McMurray, F. A. Hort, G. W. Middlemiss, J. McKenzie, G. S. Marshall, W. S. McLaren, D. Lees, R. Montgomery, M. F. Bliss, E. B. Barnes, J. W. Miller, E. E. Atkin, A. B. McPherson, M. Manson, A. S. Hendrie, J. P. E. Henery, H. B. Shepherd, A. R. Lindsay, M. W. Stewart-Smith, M. F. Huston, G. S. Gordon, R. Curle, J. Brierley, R. H. W. Garle, R. Burges, A. G. Clark, R. D. Passey, W. Ross, W. Barbour, D. B. Crerar, J. A. W. Ponton, J. M. H. Caldwell, R. Cunliffe, H. M. Sturrock, J. Lang, J. M. Moyes, W. B. Sanders, W. L. Hodge, R. P. Hadden, F. G. Bullmore, F. M. Kirwan, A. E. Hodgson, G. D. Sherwood, H. Chapple, G. W. Stone, K. D. Bean, E. L. Horsburgh, A. S. Moorhead, R. J. MacMillan, T. Miller, J. A. Smith, F. S. Kidd, C. W. Preston-Hillary, D. G. Pearson, R. W. Rix, O. V. Payne, F. Robinson, B. C. Maybury, A. P. Piggot, J. G. G. Pigott, H. J. Rae, H. G. G. Nelson, S. Marie, W. O. Pitt, H. F. Marshall, H. G. K. Young, C. H. Waddell, A. M. Wood, A. Matheson, G. C. Gill, E. I. P. Pellew, J. W. Robertson, P. C. Prince, J. C. Marshall, H. Granger, R. F. Gill, W. L. Johnson, S. N. Galbraith, A. R. Moir, C. M. Pennefather, H. Bowring, W. Matheson, J. F. Lindsay, E. M. Grace, I. B. Richardson, E. W. Grogono, A. M. Barlow, C. B. Gerrard, A. D. Yule, A. Patrick, C. H. Medlock, Q. Madge, R. R. Wade, G. B. Proctor, C. Clarke, S. W. G. Ratcliff, W. E. S. Scott, W. H. Bryce, H. T. Prince, J. I. Shepherd, A. G. Bisset, B. B. Phillips, J. S. Soutter, W. A. Slater, H. H. Bywater, J. M. Redding, C. S. van R. Harwood, H. M. M. Mackenzie, C. G. McClymont, W. Gorrie, R. H. Simpson, A. Vost, J. F. M. Sloan, J. H. Robertson, A. C. Palmer, J. A. Struthers, A. Smith, A. C. Russell, E. Thorp, N. Navarra, W. H. Richardson, D. M. Kilgour, G. W. Mitchell, T. J. R. Maguire, C. E. G. Bateman, P. E. Adams, R. J. Batty, G. B. Bartlett, E. B. Barton, A. F. Hewat, J. G. Craig, W. H. Kiep, J. H. Elliott, F. Butler, L. Bathurst, P. D. Maclean, J. B. Mason, G. A. Williams, E. V. Beaumont, J. W. Bennett, E. L. Ivens, C. W. C. Robinson, W. Shipton, H. B. L. Henderson, G. F. Oldershaw, J. T. Morrison, J. Ferguson, E. A. C. Beard, R. J. Mackessack, J. T. B. Hall, F. N. Marsh, C. O. Boidman, A. V. Stocks, A. E. Carsberg, J. Oag, W. J. Rutherford, D. H. Clarke, J. H. Clatworthy, M. Clover, A. A. Campbell, L. Kilroe, W. G. Masefield, F. Joyce, A. U. Millar, L. Leslie, W. R. Wylie, H. Cordner, P. W. Leathart, J. C. Johnson, J. N. G. W. McMorris, O. C. M. Davis, L. W. Mortimer, A. G. McIntyre, D. L. Lindsay, N. C. Lake, R. C. Muir, G. J. R. Carruthers, T. McCririck, R. Marshall, J. A. M. Clark, H. W. Moir, D. Morrison, C. J. N. Longridge, J. D. Clay, J. Lindsay, J. Jeffrey, R. L. E. Downer, T. Chalmers, G. Macleod, J. E. Erskine-Collins, A. P. Fry, G. F. Shepherd, T. A. Ross, E. P. Dewar, F. W. Fawssett, T. Jackson, J. P. Fairley, W. H. R. McCarter, R. Gellatly, R. P. Rosser, G. E. Lockyer, W. O. Travis, R. H. G. Oulton, M. Nicoll, C. C. Harris, H. H. Sloane, W. R. Addis, H. Tomlin, J. L. Rubidge, T. Clarke, A. C. Sharp, B. C. Powell, C. J. Taylor, H. G. Davison, T. J. Gilmore, R. B. Carter, T. J. Killard-Leavey, F. E. Reynolds, S. A. Forbes, H. H. Kendrick, R. E. Collins, J. C. Curtis, Ll. R. Meech, J. N. Glaister, D. M. Reid, G. C. B. Mieville, J. M. Burnford, C. C. Vigurs, J. Renwick, H. R. Crisp, K. Simpson, R. C. Corbett, W. R. L. Waters, L. D. Wright, F. Dallimore. Temporary Honorary Captains retaining the honorary rank of Captain: S. R. Meaker, A. C. Hudson, A. B. Pastel. Temporary Lieutenants retaining the rank of Lieutenant: G. A. Thompson, P. W. Smith, C. J. L. Palmer, L. P. M. Gardner, A. Bevan, A. J. Reynolds, E. Walsh, N. A. Macleod, H. H. Patrick, F. Anderson, R. W. Taylor, L. D. Stephen, B. A. McSwiney, E. F. Crabtree, J. R. Sutherland, G. A. Fothergill, J. D. Walker.

SPECIAL RESERVE OF OFFICERS.

Captains relinquishing the acting rank of Lieutenant-Colonel: W. H. Elliott (and reverts to the acting rank of Major), G. T. Van der Vijver (on re-posting).

Captains relinquishing the acting rank of Major: R. R. G. Atkins and J. Walker. On re-posting: F. Gamm, T. W. Clarke, W. McCombie, G. F. V. Leary, E. Butler.

Captains to be acting Majors: E. Butler, J. P. Charnock, F. Cook, J. W. Cannon.

TERRITORIAL FORCE.

Lieut.-Col. (Bt. Col.) H. W. Webber, from the 4th Southern General Hospital, to be Lieutenant-Colonel.

Majors (acting Lieut.-Cols.) B. M. H. Rogers and D. L. Fisher relinquish their acting rank on ceasing to be specially employed.

Major D. F. Todd to be acting Lieutenant-Colonel whilst specially employed.

Lieut.-Col. (acting Col.) E. C. Montgomery-Smith relinquishes his acting rank on vacating the appointment as Assistant Director of Medical Services.

Major (Bt. Lieut.-Col.) (acting Lieut.-Col.) E. B. Bird relinquishes his acting rank on ceasing to be specially employed.

The undermentioned officers relinquish their acting rank on ceasing to be specially employed: Majors (acting Lieut.-Cols.) H. Henry, G. H. L. Hammerton, F. Whalley, D. L. Fisher, R. Griffith; Capts. (acting Lieut.-Cols.) A. Baxter, J. A. Davies, H. G. Haynes, A. C. F. Turner, T. B. Wolstenholme; Capts. (acting Majors) W. Scarisbrick, C. A. Webster, J. S. Ward, T. B. McKee, C. H. Caldicott, J. R. B. Russell, H. T. Bates, M. Coplans, W. J. T. Kimber, P. R. Bolus, R. Armstrong, P. W. Burn, K. A. P. R. Murray, A. R. Paterson, J. H. Crane, W. E. H. Bull, J. H. Donnell, G. E. J. A. Robinson, A. T. Mulhall, E. L. Rowse, R. Errington, W. C. Macaulay, R. C. Neil, B. E. Potter, P. S. Price.

Capt. W. H. H. Bennett is restored to the establishment.

Capt. (acting Major) S. English to be Major.

Capt. (Bt. Major) (acting Major) A. S. M. Macgregor relinquishes his acting rank on vacating appointment as Deputy Assistant Director of Medical Services.

Captains (acting Majors) to be acting Lieutenant-Colonels whilst specially employed: J. Strathearn, H. Paterson, M. S. Doubble.

Capts. D. W. Berry and T. V. Oldham to be Deputy Assistant Directors of Medical Services and to be acting Majors whilst so employed.

Capts. J. Steele, J. Young, and K. L. Gauntlett relinquish their commissions and retain the rank of Captain.

Capt. G. R. Rickett to be acting Lieutenant-Colonel whilst specially employed.

Capt. N. H. Burroughes to be Major.

Captains to be acting Majors whilst specially employed: A. Cameron, H. B. Cunningham, H. S. Wallace, R. W. Aitken, K. F. R. Davison.

1st London Sanitary Company: Capt. (acting Major) A. A. M'Whan relinquishes his acting rank on ceasing to be specially employed. Capt. (acting Major) W. N. W. Kennedy relinquishes his acting rank on vacating the appointment of Deputy Assistant Director of Medical Services.

2nd London Sanitary Company: Capt. (acting Major) F. S. Carson relinquishes his acting rank on ceasing to be specially employed.

East Anglian Divisional Sanitary Section: Capt. (acting Major) W. F. Corfield relinquishes his acting rank on vacating appointment of Deputy Assistant Director of Medical Services.

2nd Eastern General Hospital: Capt. (acting Major) W. R. Wood relinquishes his acting rank on ceasing to be specially employed.

1st Southern General Hospital: Capt. (acting Major) S. G. Webb relinquishes his acting rank on ceasing to be specially employed.

2nd Southern General Hospital: The undermentioned officers are seconded for service with a Special Military Surgical Hospital: Capts. C. F. Coombs. (Bt. Major) E. W. H. Groves, J. M. Fortescue-Brickdale, A. R. Short, A. L. Flemming.

3rd Southern General Hospital: Capt. (acting Major) A. G. Kewley relinquishes his acting rank on ceasing to be specially employed.

2nd Scottish General Hospital: Major (Bt. Lieut.-Col.) D. Wallace is restored to the establishment.

3rd Scottish General Hospital: Major H. Rutherfurd is restored to the establishment. Major (acting Lieut.-Col.) B. Riddell relinquishes his acting rank on ceasing to be specially employed.

1st Eastern General Hospital: Capt. R. V. Slattery is restored to the establishment.

ROYAL AIR FORCE.

Medical Branch.—P. C. Livingston is granted a temporary commission as Captain.

The undermentioned are transferred to unemployed list: Capts. A. L. George, A. G. Holman, Lieut. H. G. James.

Capt. M. E. H. Wale relinquishes his commission and is permitted to retain his rank.

INDIAN MEDICAL SERVICE.

Temp. Lieut. A. S. Garewal to be temporary Captain.

Major W. V. Coppinger becomes Professor of Ophthalmic Surgery, Medical College, Calcutta. Lieut.-Col. C. H. Meyer is posted to Bombay. Major E. J. C. McDonald, whose services have been replaced at the disposal of the Assam Administration, has been appointed Civil Surgeon, North-East Frontier. Major E. McDonald, on reversion from military duty, has been appointed Civil Surgeon, North-East Frontier. The services of Lieut.-Col. Clemesha have been lent to the Bombay Municipal Corporation for carrying on investigations connected with the water-supply in Bombay.

Lieut.-Col. C. A. Lane, Civil Surgeon, Hooghli, proceeds on eight months' leave. Capt. C. C. Harrison, R.A.M.C., has been appointed to hold medical charge of the Civil Station of Barrackpore, vice Capt. D. J. McLaren, R.A.M.C. Lieut.-Col. F. S. C. Thompson, Superintendent, Presidency Jail, has been appointed to act as Inspector-General of Prisons, Bengal. Major H. H. Knapp has been appointed a member of the Burma Medical Council. The Hon. Surg.-Gen. G. G. Giffard having joined the Medical Services Committee, the Hon. Col. W. J. Niblock has been appointed to act as Surgeon-General with Government of Madras during his absence. Lieut.-Col. Symons and Major Tucker have reverted to civil employment under the Government of Madras. The services of Capt. Sewell have been placed at the disposal of the Marine Department. With the departure on leave of Major W. A. Justice, which is understood to be preparatory to retirement, Lieut.-Col. T. S. Ross is gazetted to be Sanitary Commissioner for Madras.

DEATHS IN THE SERVICES.

Lieutenant-Colonel Edward Forster Drake-Brockman, I.M.S. (retd.), at his residence, Hatch End, Middlesex, on May 1st, aged 76. He was formerly superintendent of the Government Ophthalmic Hospital, Madras, and professor of physiology and ophthalmology at the Madras Medical College.

URBAN VITAL STATISTICS.

(Week ended May 3rd, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500,000 persons, the annual rate of mortality, which had declined from 35·7 to 13·5 in the nine preceding weeks, rose to 13·7 per 1000. In London, with a population slightly exceeding 4,000,000 persons, the annual rate was 14·0, or 1·4 per 1000 above that in the previous week, and among the remaining towns the rates ranged from 3·0 in Swindon, 5·5 in Enfield, and 6·0 in Barrow-in-Furness, to 19·1 in Bury, 19·7 in Southport, 20·2 in Rotherham, and 20·3 in Aberdare. The principal epidemic diseases caused 157 deaths, which corresponded to an annual rate of 0·5 per 1000, and included 55 from measles, 38 from diphtheria, 30 from infantile diarrhœa, 20 from whooping-cough, 11 from scarlet fever, 2 from enteric fever, and 1 from small-pox. Measles caused a death-rate of 3·5 in Middlesbrough and 6·4 in Rotherham. The deaths attributed to influenza, which had steadily declined from 3889 to 229 in the nine preceding weeks, further fell to 172 last week, and included 44 in London, 9 in Sheffield, 7 in Birmingham, and 6 in Manchester. There were 1 case of small-pox, 1064 of scarlet fever, and 1148 of diphtheria under treatment in the Metropolitan Asylums Hospitals and the London Fever Hospital, against 2, 1057, and 1165 respectively at the end of the previous week. The causes of 30 deaths in the 96 towns were uncertified, of which 7 were registered in Birmingham.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality, which had declined from 40·0 to 15·1 in the nine preceding weeks, further fell to 12·8 per 1000. The 278 deaths in Glasgow corresponded to an annual rate of 13·0 per 1000, and included 16 from whooping-cough, 15 from measles 3 from diphtheria, 3 from infantile diarrhœa, and 1 from scarlet fever. The 76 deaths in Edinburgh were equal to an annual rate of 11·8, and included 6 from whooping-cough and 3 from measles.

Irish Towns.—The 148 deaths in Dublin corresponded to an annual rate of 19·1, or 0·3 per 1000 above that recorded in the previous week, and included 2 from infantile diarrhœa. The 119 deaths in Belfast were equal to an annual rate of 15·5 per 1000, and included 2 from infantile diarrhœa.

Medical News.

THE annual oration of the Medical Society of London will be delivered on Monday next, May 12th, at 9 P.M., at the house of the society, 11, Chandos-street, Cavendish-square, by Sir John Tweedy, who takes as his subject "The Medical Tradition."

THE Industrial Fatigue Research Board has been completed by the addition of the names of Miss Winifred C. Cullis, D.Sc., head of the department of physiology at the London School of Medicine for Women, and Miss Mona Wilson, National Health Insurance Commissioner since 1912.

LITERARY INTELLIGENCE.—Messrs. W. Heffer and Sons, Cambridge, announce the forthcoming appearance of a new edition of Mr. S. W. Cole's "Practical Physiological Chemistry." Extended from 230 to over 400 pages, the work is intended to appeal to students and research workers interested in modern biochemical technique. There is an introduction by Professor F. G. Hopkins.

THE LATE MR. EDWARD TREVES.—Mr. Treves, who died at Hove on April 27th after an illness of only three days' duration from double pneumonia, was one of the oldest medical practitioners in the borough. He held the office of police surgeon for a very long period, resigning in April, 1902, and the corporation placed on record its appreciation of his long and faithful service. Mr. Treves, who held a number of appointments in Brighton and Hove, became a Member of the Royal College of Surgeons in 1874, having studied at St. Thomas's and London Hospitals.

SOUTH LONDON HOSPITAL FOR WOMEN.—At the annual general meeting to be held at Londonderry House, Park-lane, W., on Wednesday, May 14th, at 3.15 P.M., the Marchioness of Londonderry will preside, and among the speakers will be Miss Cornelia Sorabji, legal adviser to Purdanashins, Government of Bengal, India.

THE LATE DR. JOHN MACCOMBIE.—Dr. MacCombie, who died on April 24th, in his sixty-ninth year, was the youngest son of Mr. William MacCombie, the first editor of the *Aberdeen Free Press*. He received his early education at the Aberdeen Grammar School, entered at King's College, Aberdeen, in 1867, and graduated in arts at the University four years later. He proceeded to the M.B., C.M. degree in 1874, and to the M.D. degree in 1880. Immediately after qualifying he joined the service of the Metropolitan Asylums Board as medical superintendent of the Small-pox Hospital at Limehouse, and subsequently became senior superintendent on the medical staff of the Board, being at the time of his retirement five years ago in charge of the North-Western Hospital at Hampstead.

THE HUNTERIAN SOCIETY.—A discussion on the Problem of Disablement, with Especial Reference to the Combined Treatment and Training of Injured Ex-soldiers, will take place at a meeting of this society to be held in the West Lecture Hall, 1, Wimpole-street, W., on Tuesday, May 13th, at 8.30 P.M. Dr. Fortescue Fox will introduce the subject, and Dr. F. H. Humphris will read a short paper on the Melted Paraffin Wax Bath. The meeting will be open to all members of the profession.

THE LATE DR. W. GEMMELL.—William Gemmell, M.B., C.M.Glasg., a well-known antiquary, died on April 2nd at the Western Infirmary, Glasgow, where he had been taken a few days previously after being knocked down by a motor cycle. Born at Glasgow on Oct. 26th, 1859, he received his early education at the Academy and at the High School, Glasgow, and afterwards studied medicine at King's College, London, and at Glasgow University, where he graduated M.B., C.M., in 1888. After successively holding residential appointments at the Glasgow Royal Infirmary, the Glasgow Maternity Hospital, and the Belvedere Fever Hospital, he became a pupil assistant to the medical officer of health of Glasgow, and later went for a voyage as ship surgeon. In the early "nineties" he started general practice at Hornsey, in the north of London, where he remained for some 20 years, finally returning to Glasgow and devoting himself to public work and to literary and antiquarian pursuits, for which he had always displayed a strong bent. He was elected on the town council in 1912 for the Jordanhill ward, and in 1917 became a magistrate. A Fellow of the Society of Antiquaries of Scotland and President of the Grand Antiquary Society, Dr. Gemmell published in 1910 "The Oldest House in Glasgow," a book of considerable local antiquarian interest, and among other contributions to the historical records of his native city was "Early Views of Glasgow."

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, May 15th.—Papers:—Prof. W. H. Young: (1) On the Area of Surfaces; (2) On Change of the Independent Variables in a Multiple Integral.—Prof. W. A. Bone and Mr. R. J. Sarjant: Researches on the Chemistry of Coal. Part I., The Action of Pyridine upon the Coal Substance.—Prof. E. F. Burton: A New Method of Weighing Colloidal Particles (communicated by Prof. J. C. McLennan).—Mr. W. E. Curtis: The Value of the Rydberg Constant for Spectral Series (communicated by Prof. A. Fowler).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.
Wednesday, May 14th.
SOCIAL EVENING: at 8.30 P.M.
Conversation in Library, light refreshments and smoking.
At 9.30 P.M., Mrs. Dickinson Berry: Balkan Experiences (with pictures).
All Medical Officers, including Allies, are cordially invited.

MEETINGS OF SECTIONS.
Wednesday, May 14th.
SURGERY: SUB-SECTION OF PROCTOLOGY (Hon. Secretaries—P. Lockhart-Mummery, W. Sampson Handley): at 5.30 P.M.
Annual Meeting.—Election of Officers and Council for 1919–1920.
Cases:
Mr. Sampson Handley, F.R.C.S.: A Case of Recurrence in Posterior Vaginal Wall Three Years after Abdomino-Perineal Excision for Carcinoma.
Mr. P. Lockhart-Mummery, F.R.C.S.: (1) A Case of Complete Excision of the Colon for Multiple Adenomata (Patient and Specimens shown); (2) A Case of Megacolon (Hirschsprung's Disease); (3) A Case of Megacolon with Secondary Carcinoma.
Mr. Percival Cole, F.R.C.S.: (1) A Case showing Result of Resection for Carcinoma; (2) Two Cases illustrating the Result of Resection in Complete Prolapse of the Rectum.
Professor Arthur Keith: Demonstration of Specimens of War Injuries of the Rectum and Colon from the Royal College of Surgeons' Collection.
Dr. Alfred Jordan: X Ray Appearances in a Case of Diverticulitis of the Sigmoid.

Thursday, May 15th.
DERMATOLOGY (Hon. Secretary—S. E. Dore): at 5 P.M.
Annual Meeting.—Election of Officers and Council for 1919–1920.
Cases (at 4.30 P.M.):
Dr. J. J. Pringle: A Case of Early "Kaposi's" Disease of the Feet.
Dr. J. H. Sequeira: L'homme Rouge.
Dr. H. W. Barber: (1) Scleroderma; (2) Lichen Planus.
Mr. H. C. Samuel: (1) Leuconychia; (2) Leucodermia.
Mrs. Addison (introduced by Mr. Willmott Evans): Trichorrhexis Nodosa (with Microscopical Specimens).

Friday, May 16th.
OTOLOGY (Hon. Secretaries—J. F. O'Malley, H. Buckland Jones): at 5 P.M.
Annual Meeting.—Election of Officers and Council for 1919–1920.
Cases and Specimens will be shown by Dr. Watson-Williams, Mr. J. F. O'Malley, Mr. J. S. Fraser, and others.

ELECTRO-THERAPEUTICS (Hon. Secretaries—Robert Knox, Walter J. Turrell).
Annual Meeting.—Election of Officers and Council for 1919–1920 at 7.15 P.M.
Dinner, 7.30 P.M., at Pagani's Restaurant.

The Royal Society of Medicine keeps open house for medical officers of all the Allied Forces, and invites them to make free use of its library and rooms. The Emergency Post Graduate Scheme, under the charge of the "Fellowship of Medicine" is also open to all medical officers. Particulars of this will be supplied by the Secretary, Fellowship of Medicine, 1, Wimpole-street, London, W. 1.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.
MONDAY, May 12th.—8 P.M., General Meeting and Election of President and Council for the 1919–1920 Session and other business. 9 P.M., Annual Oration:—Sir John Tweedy: The Medical Tradition. Followed by a Conversazione.

HUNTERIAN SOCIETY, at 1, Wimpole-street, W.
TUESDAY, May 13th.—8.30 P.M., Discussion on the Problem of Disablement, with Special Reference to the Combined Treatment and Training of Injured Ex-soldiers (opened by Dr. R. F. Fox).—Short Paper:—Dr. F. H. Humphris: Melted Paraffin Wax Bath.

BRITISH PSYCHOLOGICAL SOCIETY (MEDICAL SECTION), at the Medical Society of London, 11, Chandos-street, W.
WEDNESDAY, May 14th.—8.30 P.M., Inaugural Address:—Dr. W. H. R. Rivers: The Objects and Work of the Section.

SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 11, Chandos-street, Cavendish-square, W.
FRIDAY, May 16th.—5.30 P.M., Paper:—Prof. M. Lefroy: Fly Sprays.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

LONDON HOSPITAL MEDICAL COLLEGE.
A Special Course of Instruction in the Surgical Dyspepsias will be given at the Hospital by Mr. A. J. Walton. Lectures, given in the Clinical Theatre:—
MONDAY, May 12th.—1 P.M., Lecture XVIII.:—Surgical Anatomy of the Liver and Gall Bladder. (In the Dissecting Room.)
FRIDAY.—10 A.M., Lecture XIX.:—Ætiology and Pathology of Gall Stones and their Complications.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST, Brompton, S.W.
WEDNESDAY, May 14th.—4.30 P.M., Lecture:—Dr. D. Grant: The Treatment of Tuberculosis of the Larynx.

ROYAL INSTITUTION OF GREAT BRITAIN, Albemarle-street, Piccadilly, W.
TUESDAY, May 13th.—3 P.M., Lecture III.:—Prof. A. Keith: British Ethnology—The People of Wales and Ireland.

Appointments.

Successful applicants for vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BLOOD, FITZGERALD, M.D. Dub., has been appointed a Medical Referee under the Workmen's Compensation Act, 1906, for County Court Circuit No. 7, Birkenhead.
BRUCE, O., M.R.C.S., L.R.C.P. Lond., Tuberculosis Officer to the Middlesex Council Council.
THATCHER, LEWIS, M.D., F.R.C.P. Edin., Extra Physician to the Royal Hospital for Sick Children, Edinburgh.
Certifying Surgeons under the Factory and Workshop Acts:—CLAPHAM, S. C., M.B., B.S. Durh. (Martock); PIM, A. A., L.R.C.P. & F.R.C.S. Edin. (Beaminster); FARRER, R. N., M.R.C.S., L.R.C.P. Lond. (Denby Dale); SMITH, C. C., M.R.C.S., L.R.C.P. Lond. (Woburn Sands); ALLAN, A. W., M.R.C.S., L.R.C.P. Lond. (Skegness); DICKSON, L. E., M.D. Lond. (Bridgnorth); THOMARSON, J., M.D. Edin. (Poole); BARKER, E. G., M.R.C.S., L.R.C.P. Lond. (Perranporth); DONNELL, J. H., M.B., B.C. Camb. (Hinckley); COURT, A., M.B., B.C. Camb. (Staveley); WALKER, C. D., M.B., Ch.B. Edin. (Thorne); HUTTON, M., M.B., Ch.B. Glasg., (Barrowden); ASHBY, J. E., M.R.C.S., L.R.C.P. Lond. (New Southgate); and SPARROW, N. A. K., L.R.C.P. & S. Irel. (Clay Cross).

Vacancies.

For further information refer to the advertisement columns.

Bath, Royal United Hospital.—H.S. £150.
Bedford County Hospital.—H.P. £150.
Birkenhead and Wirral Children's Hospital.—H.S.
Birmingham and Midland Ear and Throat Hospital.—H.S. £400.
Birmingham General Hospital.—H.S. and Cas. H.S.
Bristol General Hospital.—Dental H.S. £250.
Bootle Borough Hospital, near Liverpool.—Hon. Dental S.
Cambridge, County Mental Hospital.—Second Asst. M.O. £250.
Canning Town Women's Settlement Hospital, Balaam-street, Plaistow, E.—Female Physician and Asst. Physician.
Carlisle, Cumberland Infirmary.—Hon. Cphth. Surg.
Carmarthen Mental Hospital.—Second Asst. M.O. £250.
Carnarvon, Carnarvonshire Education Committee.—Asst. Sch. M.O. £400. Also Sch. Dentist. £300
Cheshire County Council.—District Tuberc. O. £400.
Chester, City and County of the City.—Asst. M.O.H. £400.
City of London Maternity Hospital, City-road, E.C.—Asst. Obstet. S. Also Registrar and Pathologist. Also Res. M.O. £100.
Cotford, Taunton, Somerset and Bath Asylum.—Asst. M.O. £300.
Derby County Asylum, Mickleover.—L.T. £7 7s. per week.
Dover, Royal Victoria Hospital.—H.S. £150.
Dumfries and Galloway Royal Infirmary.—Res. H.S. £150.
Edinburgh Royal Infirmary.—Asst. P. Also three Asst. Surg.
Flintshire Education Committee.—Asst. M.O. £450.
Hull, City and County of Kingston-upon-Hull.—Tuberc. M.O. £600.
Hull Royal Infirmary.—Cas. H.S. £150.
Jarrow Borough.—M.O.H. £750.
Leeds University, Department of Pathology and Bacteriology.—Lect. and Demonstrator in Pathology. £500 and £300.
Liverpool Royal Infirmary.—Three Hon. Asst. Physicians and Ophth. Surgeon.
Lochgilphead, Argyllshire, Argyll and Bute District Asylum.—Asst. M.O. £250.
London County Council.—Female Medical Inspector. £400.
London Hospital, Whitechapel, E.—Asst. Gynæc. P.
London Jewish Hospital, Stepney-green, E.—Hon. Asst. S., Gnyæcol., and Dent. S. Also M.O. for Out-patients. £150.
London (Royal Free Hospital) School of Medicine for Women.—Female Demonstrator in Pharmacology. £170.
Loughborough and District General Hospital and Dispensary.—Res. H.S. £250.
Macclesfield, County Asylum.—Temp. Asst. M.O. £7 7s. per week.
Manchester and Salford Lock Hospital.—Female Clin. Asst.
Margate, Royal Sea Bathing Hospital for Surgical Tuberculosis.—Res. Surg. £200.
Metropolitan Hospital, Kingsland-road, S.E.—Two Temp. Asst. P.
Middlesbrough, North Ormesby Hospital.—Asst. H.S. £150.
Paddington Green Children's Hospital, Paddington Green, W.—Honorary Physicians and Surgeons.
Plymouth, South Devon and East Cornwall Hospital.—Physicians, Surgeons, Asst. Physician and Med. Registrar, Asst. Surgeons, Pathologist, Anæsthetists, Surg. Dentist.
Preston, Lancashire County Council, School Medical and Child Welfare Department.—Asst. County M.O. £650.
Preston Royal Infirmary.—Hon. Asst. S.'s and Hon. Path.
Queen Mary's Hospital for the East End, Stratford, E.—Res. M.O.
Royal Chest Hospital, City-road, E.C.—H.P. £120.
Royal College of Surgeons of England.—Professors and Lecturers.
Royal Eye Hospital, St. George's-circus, Southwark, S.E.—H.S. £130.
Royal National Orthopædic Hospital, 234, Great Portland-street, W.—Res. H.S. £200.
Royal Waterloo Hospital for Children and Women, S.E.—Hon. Dental Surgeon.

St. Andrew's Hospital, Dollis Hill, London, N.W.—Res. M.O. £80.
St. Helena.—Asst. to Colonial Surgeon. £350.
St. Thomas's Hospital, London, S.E.—Physicians, Surgeons, and Asst. Physician. Also M.O.
Scottish Women's Hospitals.—Female Asst. M.O. £300.
Sheffield City Education Committee.—School Dent. S. £350.
Sheffield, East End Branch of the Children's Hospital.—H.S. £150.
Sheffield Royal Hospital.—Aural H.S. £125.
Sheffield Royal Infirmary.—Cas. Officer. Also Ophthal. H.S. £150.
Southampton County Borough.—Female Asst. M.O. £400.
Southampton, Free Eye Hospital.—H.S. £150.
Sunderland County Borough Education Committee.—Chief School M.O. £600.
Swansea General and Eye Hospital.—Two Res. M.O.'s £250.
Taunton Borough.—M.O.H. and School M.O. £500.
Trinidad and Tobago.—Supernumerary M.O.'s. £250.
Ventnor, Isle of Wight, Royal National Hospital for Consumption and Diseases of the Chest.—Two Asst. Res. M.O.'s. £200.
Warford, Alderley Edge, Cheshire, David Lewis Epileptic Colony.—Asst. Director. £400.
Wrexham Infirmary.—H.S.

THE Chief Inspector of Factories, Home Office, S.W., gives notice of a vacancy for a Certifying Surgeon under the Factory and Workshop Acts at Uxbridge.

A VACANCY for a Medical Referee under the Workmen's Compensation Act, 1906, in County Court Circuit No. 11, attached more particularly to the Burnley and Colne and Nelson County Courts, is announced. Applications should be addressed to the Private Secretary, Home Office, not later than May 28th.

Births, Marriages, and Deaths.

BIRTHS.

GARDINER-HILL.—On May 1st, at Hilcote, Lancaster-road, Wimbledon, the wife of Clive Gardiner-Hill, M.B. Cantab., of a son.

HUTCHISSON.—On May 3rd, at Lady Howard de Walden's Maternity Hospital for Officers' Wives, 34, Albert-road, Regent's Park, to Dora (*née* Crockett) and Samuel Hutchinson, M.R.C.S. (England)—a son.

ROOKE.—On May 2nd, at Knole-road, Bournemouth, the wife of A. Basil Rooke, F.R.C.S., of a son.

ROSS.—On April 29th, at Edinburgh, the wife of Surgeon Lieutenant-Commander Campbell Ross, R.N., of a son.

SOLOMONS.—On May 3rd, at Fitzwilliam-square, Dublin, the wife of Bethel Solomons, M.D., F.R.C.P.I., of a son.

MARRIAGES.

COCHRANE—HELEN.—At All Saints Church, Eastbourne, Captain Andrew Cochrane, R.A.M.C., to Peg, daughter of Lieutenant Commander S. Helen, R.N. (retd.), London.

LOWNDES—FOSTER.—On April 12th, at St. Mary's Church, Iffley, Oxford, Arthur Lowndes (late Captain, R.A.M.C.), to Alice Joan, daughter of Mr. and Mrs. William Foster, of Beechwood, Iffley, Oxford.

WILKINSON—STURROCK.—On May 3rd, at St. Peter's, Bournemouth, Captain Stephen Harold Wilkinson, R.A.M.C., to Ida, widow of Lieutenant Arthur Hill Sturrock and second daughter of Mrs. Vaughan, St. George's-square, London, S.W.

DEATHS.

ALDRICH.—On April 27th, Arthur Worlledge Aldrich, L.R.C.P., of Manor-road, Leyton.

DRAKE-BROCKMAN.—On May 1st, 1919, at Dalreg, Hatch End, Edward Forster Drake-Brockman, F.R.C.S., Lieutenant-Colonel, I.M.S. (retired), aged 76 years, sometime Fellow of the Madras University.

POTTER.—On May 1st, at Tatsfield, George William Potter, M.D., of Tatsfield and King-street, E.C.

SMITH.—On April 30th, at Colyton House, Colyton, Devon, Frederick John Smith, M.D., F.R.C.P., F.R.C.S., Consulting Physician at the London Hospital, late of Harley-street, W., aged 62.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

CAMBRIDGE UNIVERSITY PRESS, London.

Eugenics Lecture Series. By Karl Pearson, F.R.S. The Function of Science in the Modern State, and National Life from the Standpoint of Science. 2nd ed. Each 2*s*.

DENT, J. M., London.

New Town: A Proposal in Agricultural Industrial Education, Civic and Social Reconstruction. By W. R. Hughes, M.A. 2*s*.

MILFORD, HUMPHREY, London.

The Treatment of Gout. By J. B. Berkart, M.D. 1*s*. 6*d*.
Effect of Diet on Endurance. By Irving Fisher. 2*s*. 6*d*.

MILNE, J. S., Lilburn House, Beech Grove, Swalwell-on-Tyne.

Neurasthenia and Shell Shock and a New Life. By J. S. Milne. 2*s*. 9*d*. post free.

SAUNDERS (W. B.), London and Philadelphia.

Principles and Practice of Obstetrics. By Joseph B. Delee, M.D. 3rd ed., thoroughly revised. Pp. 1089. 36*s*.
A Text-book of General Bacteriology. By Edwin O. Jordan, Professor of Bacteriology in the University of Chicago. 6th ed., thoroughly revised. Pp. 691. 17*s*.
A Manual of Gynecology. By John Cooke Hirst, M.D. Pp. 466. 12*s*.

Notes, Short Comments, and Answers to Correspondents.

COLONIAL HEALTH REPORTS.

Trinidad and Tobago.—According to the latest Blue-book the estimated population is 377,021. The birth-rate of the colony in 1917 was 33·46 per 1000 and the death-rate 21·25 per 1000. The Colonial Hospital, Port of Spain, with 320 beds, is the chief institution for the care of the sick and diseased in the colony. 4972 persons were admitted during the year and 4573 discharged; there were 655 deaths. At the San Fernando Hospital, which has 122 beds, 3074 patients were admitted and 2708 discharged. There are seven Government district hospitals at Tobago, Arima, St. Joseph, Tacarigua, Couva, Princes Town, and Cedros, with a total of 246 beds; while there are also small temporary hospitals at Chaguanas, Sangre Grande, Mayaro, and Toco. The St. Augustine Yaws Hospital, situated about seven miles east of Port of Spain, contains 200 beds. 129 patients were in this hospital at the beginning of the year; 1203 were admitted during the year and 1159 were discharged as cured; there were 13 deaths. At the Tobago Yaws Hospital, which has 60 beds, there were 44 patients at the beginning of 1917; 300 were admitted during the year, 240 were discharged as cured, and 1 died. In the Leper Asylum, situated at the village of Cocorite, about two miles westward of Port of Spain, there were on Dec. 31st, 1917, 502 inmates. There were 34 deaths during the year and 87 persons were discharged as relieved. 150 patients employ themselves in gardening within the grounds of the institution, while 16 work at their trades, and 170 do household work, draw water, &c. In the St. Ann's Lunatic Asylum, Port of Spain, there were at the end of 1917 444 males and 234 females.

Gambia.—In his report on the Blue-book for 1917 Mr. J. I. Lauder, officer in charge of the Secretariat, states that the population of Bathurst at the last census was 7700 and that the latest estimate of the population of the Protectorate is 176,500. No reliable information is obtainable in regard to births and deaths in the Protectorate. The total number of Europeans resident was 130, of whom 116 were males and 14 females. There were no deaths among Europeans and no births; four were invalided, of whom one was an official and three were non-officials. The birth-rate amongst the native population of Bathurst was 43·77 per 1000 and the death-rate 34·29. There was a distinct drop in infantile mortality, as compared with previous years. Malarial fever was, as usual, the most prevalent disease. In Bathurst one death (a native) occurred from yellow fever, but there was no epidemic. Small-pox was reported in the Protectorate in April. The total number of cases seen was 50, the death-rate being 4 per cent. 664 vaccinations were performed in Bathurst and 8120 in the Protectorate. Vaccination is performed in the Protectorate by the Travelling Commissioners during the cool season, and the natives have learned to appreciate its value. Generally, the health of the population during the year was good. The daily average number of patients in the Victoria Hospital, Bathurst, was 12; there were 45 deaths. Out-patients were attended to 6600 times and 25 operations were performed. The only hospital in the Protectorate is at Georgetown, MacCarthy Island; there were 19 persons admitted in 1917 and three deaths. In the out-patients' department there were 1223 cases. At the Infectious Diseases Hospital, near Bathurst, three cases of chicken-pox were treated and there was no death.

Gibraltar.—The estimated civil population in the city and harbour in 1917 was 18,526 (9105 males, 9421 females). There were 377 births during the year and 356 deaths. The daily average number of patients under treatment in the colonial hospital was 66; there were 64 deaths. The number of out-patients treated was 8769; of these, 1357 were Spaniards recommended by the Spanish authorities and British Vice-Consul at the neighbouring town of La Linea. No case of small-pox was treated during the year. The number of persons attending the tuberculosis dispensary averaged 53 a month, and about 48 visits a month were paid to patients in the tuberculosis home. 23,241 pints of milk and 14,070 lb. of beef were issued to persons in distressed circumstances. Nine families, consisting of 18 adults and 15 children, were given quarters, rent free, in the tuberculosis home. During the year the medical officer of health was authorised to interview and advise expectant mothers of the poorer classes and to furnish them with midwifery and medical assistance at the cost of the Colonial Government funds.

Bermuda.—The total resident population at the end of 1917 was estimated to be 21,629 (7396 white and 14,233 coloured). The birth-rate among the white population was 23·79 and

among the coloured population 34·65 per 1000. The death-rate was 14·8 per 1000 among the white and 20·65 among the coloured population. Amongst the whites are a considerable number of Portuguese, principally engaged in agriculture; the rate of natural increase among this section of the population is considerably higher than in any other. Illegitimate births numbered 16·9 of the total. Deaths from cancer among the civil population numbered 12 and those attributable to pulmonary tuberculosis 30. There was no outbreak of epidemic disease during the year. There is a cottage hospital in Hamilton, maintained by voluntary contributions and receipts from paying patients, and a small nursing home, also in Hamilton, intended principally for use by members of certain Friendly Societies, though other patients are willingly taken. The accommodation at these frequently proves inadequate for the needs of the island, and a Government Hospital, to be known as the King Edward the Seventh Memorial Hospital, was projected in 1912, and is partly built. There is a lunatic asylum maintained at the cost of the Colonial Government, under the supervision of the medical officer of health. At the end of 1917 there were 65 patients in this institution; 8 died during the year. One patient was admitted as a result of insanity caused or aggravated by active service in France.

SPIRIT DUTY (VOLUNTARY HOSPITALS) GRANT.

THE Local Government Boards for England and Wales and for Scotland are prepared to receive applications from voluntary hospitals for grants in respect of payments of duty involved by the use during the year, 1918, in these hospitals of duty-paid spirit or drugs containing duty-paid spirits for medical and surgical purposes. Forms of application will be sent only to those hospitals to which a grant was paid last year. Any other hospital which desires to make application should communicate immediately with the Secretary to the Local Government Board for England and Wales, or the Secretary to the Local Government Board for Scotland as the case may be.

A TENSOR.

THIS simple and effective apparatus to assist in the restoration of supination and pronation in wounded or stiffened joints of the forearm is now in use at the Special Military Surgical Hospital, Tooting. The instrument I have called a tensor, whereby a continuous pull may be kept up for any required period. As shown in the accompanying sketch, it consists of a hook-shape plate to fit over and partially enclose the ulna side of the hand for supination, the plate being modified in its shape to embrace the radial aspect for pronation. A strap, 24 in. in length, is attached, the central portion of which is of strong rubber webbing, and the proximal end of the strap is fastened to a buckle secured over the inner or outer condyle with a band of adhesive plaster. It is applied by enclosing the ulnar or radial border of the hand—the former for supination and the latter for pronation—in the metal grip and pulling the band round the hand to below the pisiform bone, across the dorsal aspect of the arm to the inner condyle, putting on the strain desired and fastening to the buckle. The spiral is reversed, of course, for pronation. A continuous and not uncomfortable pull is attained and the using of the hand is scarcely impeded. With a modification it is useful in flat-foot or where a valgus or varus deformity requires correction. In torticollis with a cap fitted round the forehead it is effective, as in many conditions where a continuous opposing strain is desired.

My designs for these appliances have been most ingeniously carried out by Messrs. Allen and Hanburys, of Wigmore-street, W.

J. IRWIN PALMER,
Civil Surgeon, Special Military Surgical Hospital, Tooting.

PUBLIC HOUSE REFORM.

THE report for the year 1918 of the People's Refreshment House Association, which will be submitted to the annual general meeting at St. George's House, Regent-street, London, W., on May 12th, shows a very satisfactory working condition of the association, notwithstanding the increased price and shortage of commodities. The association, which exists for the purpose of encouraging temperance in the use of alcoholic drinks at licensed inns, public houses, and canteens, and the provision of facilities for the supply of food and non-alcoholic refreshment at such houses, possessed up to the end of December, 1918, 141 licensed inns; during the present year eight others have been taken over. Managers receive no profit on alcoholic drinks, while they have a large share of profit on temperance drinks and food. The balance sheet shows a satisfactory trading profit of nearly £10,000.

SACCHAROSE INJECTIONS IN PULMONARY PHTHISIS.

To the Editor of THE LANCET.

SIR,—In answer to the question put by Mr. J. Lavens West in THE LANCET of March 29th, p. 540, I may state from my personal experience, from that of many colleagues, and from what has been recently published in the Italian medical papers, that the saccharose treatment of tuberculosis has been quite a failure.—I am, Sir, yours faithfully,

Roma, April 29th, 1919. Dott. ESCHILO DELLA SETA.

THE CARE OF BOOKS IN LARGE LIBRARIES.

IN the valuable library belonging to the College of Physicians of Philadelphia a new method has recently been adopted by means of which books and periodicals in the "stack" room are kept free from the danger of deterioration. In Philadelphia, as elsewhere, dust mixed with soot finds its way even through the cracks of closed steel window-frames, and this insidious mixture cannot be removed with the type of high-power vacuum cleaner employed in America. When the stacks were erected in 1908, we learn from the Annual Report of the Library Committee that their architect was under the impression that light and air were necessary for the care and preservation of books. This has proved not to be so. All windows in the library stacks have now been hermetically sealed, and a complete ventilating system, including air-washing machine, heating radiators, thermostatic control, and so forth, has been installed with excellent results. The Library Committee's conclusion is that the only feasible plan for the proper care of large collections of books, open and ready for use at all times, is the provision of stacks built without windows or skylights, artificially lighted and ventilated by filtered air with exhausts. The only dirt which can then reach the books will be that carried in by attendants and Fellows who have free access to the library.

Colonel W. H. Willcox, C.B., C.M.G., has been appointed a Knight of Grace of the Order of the Hospital of St. John of Jerusalem in England.

Dr. George R. Murray, having relinquished the appointment of consulting physician to the Italian Expeditionary Force, has returned to Manchester.

Communications, Letters, &c., to the Editor have been received from—

A.—Lieut. E. Allen, Lond.; A Purchaser; Archives Médicales Belges, Liége, Sec. of; Dr. C. Achard, Paris; Messrs. Allen and Hanburys, Lond.; Mr. W. Arnold, Lond.

B.—Dr. W. Brown, Lond.; Capt. G. A. Bird, M.C., R.A.M.C.; Dr. S. G. Billington, Hythe; Prof. W. M. Bayliss, Lond.; Dr. R. T. Bailey, Liverpool; Dr. G. Blacker, Lond.; Major W. Broughton-Alcock, R.A.M.C.(S.R.); Miss W. F. Buckley, M.R.C.S. Lond.; Dr. I. Bram, Philadelphia; Mr. F. B. Beddard, Lond.; Miss R. M. Bloch, Lond.; Mr. H. Bazett, Chard; Dr. C. H. Browning, Lond.

C.—Dr. A. Compton, Lond.; Dr. E. L. Collis, Lond.; Child Study Society, Lond., Sec. of; Mr. A. E. Chisholm, Edinburgh; Conjoint Board of Scientific Societies, Lond.; Dr. A. K. Chalmers, Glasgow; Dr. H. P. Cholmeley, Forest Row; Mr. J. Cabburn, Lond.; Dr. F. G. Crookshank, Lond.; Mr. S. Coltson, Lond.

D.—Dr. E. Della Seta, Rome; Dr. J. F. H. Dally, Lond.; Surg.-Lieut.-Com. S. F. Dudley, R.N.; Mr. L. Doncaster, Sheffield; Dr. G. Dinolt, Vienna.

E.—Dr. H. A. Ellis, Middlesbrough.

F.—Fight the Famine Council, Lond., Hon. Sec. of; Dr. T. Fisher, Norwich; F. D. P.; Prof. A. Fleming, Lond.; Capt. C. W. Farquharson, C.A.M.C.

H.—Mr. C. Higgens, Lond.; Lieut.-Col. E. R. Hunt, R.A.M.C.; Dr. C. T. W. Hirsch, Lond.; Dr. I. D. Harris, Liverpool.

J.—Dr. W. Johnson, Lond.

K.—Mr. F. Karslake, Lond.; Dr. P. Kidd, Lond.; Dr. F. Kennedy, New York.

L.—Dr. T. Lewis, Lond.; Dr. C. Lillingston; Local Government Board, Lond.; Dr. T. Lumsden, Lond.; Dr. C. E. Lakin, Lond.; Dr. T. B. Layton, Lond.; Lieut.-Col. Clayton Lane, I.M.S.

M.—Dr. J. H. Macdonald, Glasgow; Dr. D. Martin, South Shields; Mr. T. H. Morse, Deal; Medical Society of London, President and Council of; *Le Moniteur Médical*, Paris, Director of; Capt. W. M. Munby, R.A.M.C.(T.); Mr. J. S. Milne, Swalwell-on-Tyne; Dr. Irwin Moore, Lond.

N.—Dr. H. P. Newsholme, Bradford-on-Avon.

O.—Dr. S. A. Owen, Lond.

P.—Dr. A. H. Priestley, Ogbourne St. George; Dr. R. R. Prest, Glenafton; Dr. R. H. Paramore, Rugby; Surg.-Lieut. T. D. Power, R.N.; Dr. A. G. Phear.

R.—Dr. A. Routh, Lond.; Dr. W. J. Rutherfurd, Renfrew; Dr. J. Ryle, Lond.; Lieut.-Col. H. B. Roderick, R.A.M.C.(T.); Royal Academy of Medicine in Ireland, Dublin; Royal Society, Lond.; Royal Institution, Lond.

S.—South London Hospital for Women, Board of Management of; Mr. P. Smith, Tredegar; Prof. W. Stirling, Manchester; Dr. C. N. Slaney, Parkhurst; Mr. R. A. Stoney, Dublin.

T.—Dr. A. Turner, Plympton; Mr. R. T. Thompson, Lond.; Capt. J. G. Thomson, R.A.M.C.; Mr. T. Thomas, Huddersfield.

W.—Wellcome Bureau of Scientific Research, Lond., Sec. of; Mr. W. T. Wright, Eastbourne; Dr. G. Ward, Sevenoaks; Dr. F. J. Waldo, Lond.; Mr. R. Warren, Lond.

Communications relating to editorial business should be addressed exclusively to the Editor of THE LANCET, 423, Strand, London, W.C. 2.